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No Wide Open Cuts in Prices

Steel Market Conditions Little Changed

There is little basis for the widespread predictions in the past few days of a "wide open cut in steel prices," implying that the market is to be taken forcibly in hand and made active. In spite of the newspaper and speculative clamor for something spectacular, finished materials have not departed from the course that has been followed for weeks. Our market reports have noted from time to time that prices maintained by the largest manufacturers have been shaded by others, chiefly the smaller producers, but this feature has not been accentuated this week.

It needs to be recalled again that the present scale of operations at mills and furnaces is close to that of the record years 1907 and 1909 and that the shipments from mills are going directly into channels of consumption. The demoralization heralded as impending would be remarkable under such conditions.

The statement of Chairman Gary, of the Steel Corporation, called out by the reports of the past few days, indicates that the large manufacturers are disposed to continue the policy of recent months. The situation to-day is very different from that which led to the price cutting of February, 1909. Then the shrunken volume of steel buying was due largely to the exceptional price policy pursued by the manufacturers, separating their industry from all others. To-day buyers are holding off because of conditions outside the industry itself. It is plain that the present hand to mouth buying cannot be galvanized into liberal contracts for forward delivery by a slaughter of prices.

The 1.40c. Pittsburgh price for plates, structural shapes and bars is maintained by the Steel Corporation and by nearly all its competitors. For bars this is minimum. The shading on plates is on narrower widths. In structural material the chief departures from 1.40c. have been in connection with fabricating contracts which have gone in some cases to as low a level as at any time last year.

The volume of new wire business is exceptional, and wrought pipe and tubes stand second in amount of new business taken. In sheets competition has been sharp for some time, but with nothing approaching demoralization.

The authorized statement that the Steel Corporation exports of steel products have been for some time 25,000 tons a month more than those of last year confirms what has been known in a general way as to the expansion of trade in outside markets. A considerable sale of rails has been made to a Chilean railroad.

Domestic rail business includes two orders from the St. Paul road for this year, one for 5500 tons placed at Chicago, and one for a less amount, placed at Buffalo. The Colorado mill has closed a good tonnage, including 13,600 tons for the Denver & Rio Grande and

12,000 tons for the San Pedro, Los Angeles & Salt Lake.

The Long Island Railroad inquiry for steel for bridges to abolish grade crossings is the largest now up, apart from the Quebec bridge and the New York subways. The work will take two years and the present inquiry is for 12,000 tons of steel or half that.

South Chicago mills will furnish the plates and shapes, about 2500 tons, for the new Pere Marquette car ferry.

One encouraging feature of the Western bar trade is the full specifications coming from implement manufacturers. The troubles they had last winter in getting bars led to the placing of very liberal contracts, larger in some cases than seemed necessary. Prospects are excellent for a very large output from agricultural works.

The irregularity in prices of semifinished steel in the Pittsburgh district are due chiefly to sales of billets and sheet bars held by dealers, at 25 to 50 cents a ton under mill prices.

In pig iron the aggregate of small orders for shipment this year has been more in some markets than for weeks. Some furnaces have been willing to sell at close to current prices for shipments beginning in November or December and running over the first quarter of next year. Southern sales of this sort have been at $11.50, Birmingham, for No. 2 foundry. For the most part the deadlock on 1911 deliveries continues.

Several sales of basic iron were made at Philadelphia, including a lot of 5000 tons and one of 4000 tons, at less than $15, delivered. In the Central West basic iron has declined further, a sale of 4500 tons for the last quarter being made at $13.45, at Valley furnace. A sale by a dealer was made at a still lower price.

The Tariff Board and Manufacturing Costs

A Washington writer points out that the plans of the Tariff Board for gathering data as to costs of production in the United States and other countries have reached a stage at which some authoritative ruling must be had as to just what the board is to undertake to get. The doctrine was laid down at the time the Executive programme for a Tariff Board was presented to Congress, that our protective tariff should be just high enough to represent the difference between domestic and foreign cost of manufacture plus a "reasonable profit." The utterances of the President, while never going beyond generalities, have indicated his belief that the determination of the two sets of costs as well as what a "reasonable profit" is would not be difficult. That the magnitude of the work grew upon the Executive mind as its actual execution pressed upon him appears in the following from a letter he recently wrote:

> When we understand that the cost of production differs in one country abroad from that in another, and that it changes from year to year and from month to month, we must realize that the precise difference in cost of production sought for is not capable of definite ascertainment and that even the most a scientific person can do in his investigation is, after consideration of many facts which he learns, to exercise his best judgment in reaching a conclusion.

It will be seen that the ideas now entertained, as to the possibilities of tariff making on information secured by "scientific persons," are far from being dogmatic. Moreover, confidence in the value of the Tariff Board's work will be less when it begins to dawn upon these cost investigators that the differences in production cost, not alone between foreign countries, to which the above extract refers, but between different sections of our own country, are really important factors in such an inquiry. The fact may not be known to the so-called experts who are to do the investigating, and they may even miss it in their probing, but there are differences in cost between certain steel works in the United States, that are greater than the duty on the products common to these works. There is a greater difference than $2.50 a ton in the cost of pig iron made at certain blast furnaces that could be named and the cost of pig iron at other furnaces which have modern equipment and low priced raw materials. Similarly there is a greater difference than $3.92 a ton between costs of making steel rails at different domestic mills. Other iron and steel products could be named on which the duty does not cover the gap between low cost and high cost plants at home. It is not unlikely that a similar condition exists in other industries.

We have pointed out on other occasions the difficulties which the Tariff Board experts will encounter in pursuing their quest both at home and broad. There is no reason to expect that they will come any nearer to foreign costs than the special agents who went abroad to get information for Chairman Payne's committee. Furthermore, judging from some of the figres on steel making costs in the United States submitted to the last Ways and Means Committee, the different ideas of what "cost" should include will also represent greater differences than the amount of the tariff on a given article.

Manufacturers should not fail to recognize the popular demand for information as to the need of present protective duties—a demand more insistent than it has ever been. Just as the day of large corporations calls for greater publicity as to their operations, and particularly as to their effect on the prices of their products, there is no gainsaying the justice of the demand for facts as to the relation of tariff schedules to new industrial conditions—progress in invention, in manufacturing economies and in methods of doing business. But much depends on the sort of intelligence that is brought to bear on the inquiry. It is not so many years since the American people were persuaded that tariff schedules turned on "a study of markets rather than maxims." Just now the advocates of the "scientific" method need to be reminded that what is needed is more a study of markets than of costs. There are signs, too, that this is beginning to be appreciated. It is even suggested at Washington that perhaps the Tariff Board's inquiry might better concern itself with market prices of foreign products as laid down at various points of consumption, including the ports of the United States, and a comparison with prices of domestic products in the light of labor conditions at home and abroad. Concerning these things reliable data are abundant and their meaning would not be hid.

The Stock Market and the Iron Trade

It is unfortunate for the iron trade that the speculation in the stocks of industrial corporations carries with it the assiduous gathering of all sorts of rumors regarding market conditions on iron and steel products. No rumor is too wild to secure publicity through some one of the agencies supplying information to speculators. This may be a good thing for the holders

of industrial stocks in flush times, as the values of stocks are then enhanced. On the other hand, when the iron trade is quiet or a degree of depression prevails, the circulation of these rumors has an adverse double effect, as then the values of industrial securities are depressed, and consumers of iron and steel products are led to believe that trade conditions are worse than is actually the case.

The copper market for years presented a condition of this character. The speculation in stocks of copper companies carried with it the apparent desirability of securing and publishing the greatest amount of information possible regarding the operations of the companies and the condition of industries consuming copper. For this reason copper has long been considered as a highly speculative metal, its price being strongly influenced by the publication of all sorts of rumors regarding the increase or decrease in the consumption of the metal, gathered for the purpose of influencing the values of copper companies on the stock exchanges rather than for the purpose of guiding consumers in their purchases of the metal. For this reason it has always been necessary for those who consume copper in any considerable quantity to watch the developments on the stock exchanges while bringing their best judgment to play relative to conditions in their own branches of trade, so that they might form some opinion relative to the value of the metal for at least a reasonable time in the future.

When the large consolidations were formed in the iron and steel trade and the stocks of such corporations were listed on the stock exchanges the likelihood of the conditions existing in the copper trade developing in the same manner in the iron and steel trade was pointed out. We are now realizing the truth of this surmise. In the present condition of the trade the utmost diligence is shown by the gatherers of news for the use of speculators in securing everything likely to have an effect on the securities of industrial corporations. If a blast furnace is blown out for repairs or a steel plant is closed because of a breakdown, or some iron and steel establishment is forced to cease operations on account of a shortage of water supply through drought, the fact is not only published but commented upon in such a way as to carry the impression that trade is not only bad but steadily growing worse or some means would have been found to keep such plants in operation. If a concession is made on the price of some iron and steel product, this information is given the widest publicity. If even a rumor secures circulation that some steel manufacturer is making a little more strenuous effort than usual to secure orders this is given the color of an actuality and a general lowering of prices is heralded to the country. All this has the effect of causing buyers to withhold their orders in the expectation of securing lower prices, and, consequently, a worse condition of depression develops. It is time that consumers of iron and steel should carefully discriminate regarding the information being published relative to the developments in the iron and steel trade. They should understand that the purveyors of so-called news for the use of speculators do not have such intimate relations with manufacturing interests that they are able to give reliable information regarding any policy which manufacturers are contemplating. Statements of this character should be simply looked upon in their true light and not be accepted as correctly representing conditions. The speculative interests should not be permitted to influence the iron and steel market.

Our Adverse Balance of Trade

The preponderance of imports over exports continues to characterize our foreign commerce. The balance of trade for the month of August showed $3,563,425 on the wrong side of the international trade ledger. It had been hoped that either our exports would show an increase or our imports a decrease long before this time, so as to turn the balance of trade in our favor, but the August imports were the largest ever reached for that month, totaling $138,357,780, and also were larger than those of immediately preceding months. For the eight months of this year ending with August the value of imports exceeded the value of exports of merchandise by $913,569. These figures indicate the very great change which has come over our international trade, as it is many years since our imports exceeded or even equaled our exports in more than a single month at a time. We have usually enjoyed an annual balance in our favor running into hundreds of millions.

Evidently our foreign trade is out of joint. This is partly due to the very high prices for food products and cotton, which have checked our exports of such commodities. These products had long constituted the mainstay of our exports. While it is probable that the fall months will see a sufficient increase in the exports of food products and cotton to swing the balance of trade to the right side, yet it seems probable that this will only be temporary and that, unless something is done to increase our exports generally or to reduce our imports considerably, the unfavorable state of affairs in our foreign trade now existing is likely to reappear. It is not clear as to whether the new tariff is responsible to any extent for this great change in our international trade. An earnest inquiry, however, should be instituted either by the proper department of the Government or by commercial bodies for the purpose of ascertaining the cause and pointing out a remedy.

Asking for Catalogues

A thoughtless imposition that is practiced on manufacturers and dealers is that of writing for catalogues, after learning of them through the advertisements or catalogue reviews in technical and trade papers, without specifying either before or after their receipt whether or not the writer is in the market for any of the products covered in the catalogue. Like the usual neglect of courtesies over the telephone, it is the fact that we are not face to face with the individual receiving our message which makes us careless. It needs but the realization of the offensiveness of the act to have it corrected.

Most houses issuing catalogues, and especially those issuing the kind worth having, regard them as the first step in their selling campaign. Often the catalogues represent considerable expense to prepare and not infrequently the printing alone costs as much as 50 cents a piece. Naturally that they may derive the most good from this expenditure, it is their custom to follow up requests for catalogues with letters any way and

quite generally with visits from salesmen. The latter especially is a considerable added expense. It does seem as though those that are not in the market at the moment should say so at least when they acknowledge the receipt of the catalogue, and common courtesy requires the acknowledgment.

There are three classes of people who request catalogues—prospective buyers, those seeking information, and the idly curious who have no special reason for wanting the catalogue except that it is free. All houses issuing catalogues are glad to supply the first class, and most of them are willing to supply the second and even the third on the chance that they thereby sow seed for future business. If, therefore, the request for a catalogue is accompanied by a frank statement by the writer that he is not at the time contemplating purchase, or that there is no occasion for a representative to call, it is not likely that it will mean the refusal of the request for the catalogue. Most manufacturers are justifiably broad gauge enough to fill the request even though there is no immediate prospect of business, and it would save them the unnecessary added expense of following up the request with further correspondence or a salesman's visit. In fact, the evidence of consideration shown when the writer does make his position plain is certain to be appreciated by the publisher of the catalogue, for it saves him expense and trouble. An added reason for its being included with the request, is that it is likely to save the writer himself some annoyance and inconvenience. Certainly those who themselves issue catalogues should be the first to adopt the practice with others, and when the public generally become alive to the fact that it is a benefit even to themselves, it will mean a permanent lessening of the expense involved in selling machinery, and also mean a higher efficiency of trade and technical paper advertising.

The sustained interest taken by market reviewers in the Steel Corporation's statement of unfilled orders on hand is as noteworthy as the perspicacity of some of their interpretations. For example:

> September's showing of unfilled orders will undoubtedly be *much better* than August's, because of the heavier bookings and also *because shipments are running lighter*. These two factors mean a smaller loss on the total tonnage on the books.

And if all the Corporation's plants were shut down for the entire month of September shipments would run still lighter and the September 30 showing of unfilled orders would be better still.

Correspondence

Ferrotitanium in Iron and Steel Castings

To the Editor: In *The Iron Age* of August 18, pages 378 and 379, you give an abstract of the paper which I published in *Stahl und Eisen* of July 13. Referring to several critical remarks in your review, I should like to state:

1. I followed in every detail the prescriptions given by the firms which sold the ferrotitanium. The very low temperature at which the molds were poured in the first test did not interfere with proper pouring, as intimated in the criticism. The first test at the low pouring temperature and the second at the much higher temperature both show clearly that the claims of the firms selling the alloys—*i. e.*, that ferrotitanium, &c., raise the temperature—are not correct. This has been shown in our foundries by a great number of tests in actual service.

The readings were taken, as stated, with the Wanner pyrometer, an instrument rightly considered to be the best and most correct pyrometer for foundry use if properly controlled and kept adjusted. The low temperature of the first test for the pouring of the molds was chosen on purpose, as well as the higher temperature of the second test.

2. The dimensions of the test bars varied from 20 to 100 mm. square, because I wanted to find out if the statement of the different firms that the alloys produce a finer structure was right. Therefore the distance of the supports was of no account, having been arranged to suit our testing machine. One thing the fracture photographs do show, and that is that the claims of the firms regarding the structure are not correct.

3. The temperatures were given according to the table furnished with the Wanner pyrometer. Another claim for the alloys is that they reduce the sulphur. To show that this is also not correct I gave the analyses showing a reduction in sulphur of 0.0046 per cent. Every one of the analyses is an average of at least three. This will explain the third and fourth decimal.

4. I followed strictly the instructions given by the firms which induced the foundrymen to use the alloys in question and found that their claims were not correct. If your reviewer thinks that the additions of titanium were too small I would be highly interested to know what amount he considers efficient, though I am now firmly convinced that at the present market price of the alloys they are not economical in comparison with other purifiers, as, for instance, aluminum.

LEONHARD TREUHEIT,
Foundry Superintendent of the G. & J. Yaeger Iron & Steel Works.
ELBERFELD, GERMANY, September 9, 1910.

No General Cut in Steel Prices

Reports were generally circulated in New York financial districts Tuesday, said to be based on telegrams from Pittsburgh and elsewhere, that announcements of cut prices in steel products would be made this week by the United States Steel Corporation. Chairman Gary, in answer to inquiries concerning the truth of these reports, gave out the subjoined statement following the regular meeting of the Finance Committee:

"There is no justification for the statement purporting to originate in Pittsburgh that a wide open cut in prices of steel is likely to occur before the end of the week. It is well known that the new business offered at the present time, though quite large, is less than the total producing capacity. If the railroad companies were buying as much as usual or up to their necessities the mills would be crowded.

"There has been a shading of prices of some of the commodities by a few of the smaller producers. However, the principal manufacturers are disposed to maintain fair prices and to co-operate so far as they may legally and properly do so. As usual, there has been an effort, for stock jobbing or other improper purposes, to greatly exaggerate if not misrepresent the facts. On the whole, the steel business should be considered satisfactory, and I see no reason to expect any change in this respect. Indeed there has been a slight improvement during the last few days. Our export business is exceedingly good, being at the rate of at least 25,000 tons per month in excess of the export business of last year."

The population of Canton, Ohio, is 50,217, an increase of 19,550, or 63.7 per cent. over the figures for 1900.

The Iron and Metal Markets

A Comparison of Prices

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Sept.21, 1910.	Sept.14, 1910.	Aug.17, 1910.	Sept.22, 1909.
PIG IRON, Per Gross Ton:				
Foundry No. 2, standard, Philadelphia	$16.00	$16.00	$16.00	$18.25
Foundry No. 2, Southern, Cincinnati	14.25	14.25	14.25	17.75
Foundry No. 2, local, Chicago	*16.25*	16.50	16.50	19.00
Basic, delivered, eastern Pa.	15.00	15.00	15.00	18.00
Basic, Valley furnace	*13.50*	13.75	14.00	16.00
Bessemer, Pittsburgh	*15.90*	15.90	16.15	18.40
Gray forge, Pittsburgh	*14.15*	14.15	14.25	16.40
Lake Superior charcoal, Chicago	*18.25*	18.50	18.50	19.50
BILLETS, &c., Per Gross Ton:				
Bessemer billets, Pittsburgh	24.50	24.50	24.50	25.00
Forging billets, Pittsburgh	29.00	29.00	30.00	29.00
Open hearth billets, Philadelphia	*26.50*	27.00	27.50	27.60
Wire rods, Pittsburgh	28.00	28.00	28.00	31.50
Steel rails, heavy, at mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
Steel rails, melting, Chicago	13.50	13.50	13.50	16.50
Steel rails, melting, Philadelphia	**14.00**	13.75	13.75	17.50
Iron rails, Chicago	16.00	16.00	16.00	19.00
Iron rails, Philadelphia	18.00	18.00	18.00	20.50
Car wheels, Chicago	*14.00*	14.00	14.50	18.50
Car wheels, Philadelphia	*13.75*	13.75	14.00	17.00
Heavy steel scrap, Pittsburgh	**14.50**	14.50	14.25	17.50
Heavy steel scrap, Chicago	12.25	12.25	12.25	16.00
Heavy steel scrap, Philadelphia	**14.00**	13.75	13.75	17.25
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined iron bars, Philadelphia	*1.40*	1.40	1.42½	1.55
Common iron bars, Chicago	*1.37½*	1.37½	1.40	1.50
Common iron bars, Pittsburgh	1.45	1.45	1.45	1.50
Steel bars, tidewater, New York	1.56	1.56	1.56	1.56
Steel bars, Pittsburgh	1.40	1.40	1.40	1.40
Tank plates, tidewater, New York	1.56	1.56	1.56	1.66
Tank plates, Pittsburgh	1.40	1.40	1.40	1.50
Beams, tidewater, New York	1.56	1.56	1.56	1.66
Beams, Pittsburgh	1.40	1.40	1.40	1.50
Angles, tidewater, New York	1.56	1.56	1.56	1.66
Angles, Pittsburgh	1.40	1.40	1.40	1.50
Skelp, grooved steel, Pittsburgh	*1.40*	1.40	1.50	1.40
Skelp, sheared steel, Pittsburgh	*1.50*	1.50	1.60	1.50
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, Pittsburgh	*2.15*	2.15	2.20	2.20
Wire nails, Pittsburgh*	1.70	1.70	1.70	1.80
Cut nails, Pittsburgh	1.65	1.65	1.65	1.75
Barb wire, galv., Pittsburgh*	2.00	2.00	2.00	2.10
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York	*12.75*	12.87½	13.00	13.50
Electrolytic copper, New York	*12.50*	12.67½	12.62½	13.00
Spelter, New York	**5.60**	5.50	5.20	5.85
Spelter, St. Louis	**5.45**	5.35	5.05	5.70
Lead, New York	4.40	4.40	4.40	4.38
Lead, St. Louis	4.30	4.30	4.30	4.30
Tin, New York	**34.55**	34.80	33.85	29.15
Antimony, Hallett, New York	7.87½	7.87½	7.95	8.30
Nickel, New York	45.00	45.00	45.00	45.00
Tin plate, 100 lb., New York	$3.84	$3.84	$3.84	$3.64

* These prices are for largest lots to jobbers.

Prices of Finished Iron and Steel f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c. Rates to the Pacific Coast are 80c. on plates, structural shapes and sheets, No. 11 and heavier; 85c. on sheets, Nos. 12 to 16; 95c. on sheets, No. 16 and lighter; 65c. on wrought pipe and boiler tubes.

Structural Material.—I-beams and channels, 3 to 15 in., inclusive, 1.40c. to 1.45c. net; I-beams over 15 in., 1.50c. to 1.55c. net; H-beams over 8 in., 1.55c. to 1.60c.; angles, 3 to 6 in., inclusive, ¼ in. and up, 1.40c. to 1.45c. net; angles over 6 in., 1.50c. to 1.55c. net; angles, 3 in. on one or both legs, less than ¼ in. thick, 1.45c., plus full extras as per steel bar card, effective September 1, 1909; tees, 3 in. and up, 1.40c. to 1.45c. net; zees, 3 in. and up, 1.40c. to 1.45c. net; angles, channels and tees, under 3 in., 1.45c., base, plus full extras as per steel bar card of September 1, 1909; deck beams and bulb angles, 1.70c. to 1.75c. net; hand rail tees, 2.50c. net; checkered and corrugated plates, 2.50c. net.

Plates.—Tank plates, ¾ in. thick, 6¼ in. up to 100 in. wide, 1.40c. to 1.45c., base. Following are stipulations prescribed by manufacturers, with extras to be added to base price (per pound) of plates:

Rectangular plates, tank steel or conforming to manufacturers' standard specifications for structural steel dated February 6, 1903, or equivalent, ¼-in. thick and over on thinnest edge, 100 in. wide and under, down to but not including 6 in. wide, are base.

Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot are considered ¼-in. plates. Plates over 72 in. wide must be ordered ¼-in. thick on edge, or not less than 11 lb. per square foot, to take base price. Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. take the price of 3-16-in.

Allowable overweight, whether plates are ordered to gauge or weight, to be governed by the standard specifications of the Association of American Steel Manufacturers.

Gauges under ¼-in. to and including 3-16-in. on thinnest edge	$0.10
Gauges under 3-16-in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
Gauges under No. 9 to and including No. 10	.30
Gauges under No. 10 to and including No. 12	.40
Sketches (including all straight taper plates), 3 ft. and over in length	.10
Complete circles, 3 ft. diameter and over	.20
Boiler and flange steel	.10
"A. B. M. A." and ordinary firebox steel	.20
Still bottom steel	.30
Marine steel	.40
Locomotive firebox steel	.50
Widths over 100 in. up to 110 in., inclusive	.05
Widths over 110 in. up to 115 in., inclusive	.10
Widths over 115 in. up to 120 in., inclusive	.15
Widths over 120 in. up to 125 in., inclusive	.25
Widths over 125 in. up to 130 in., inclusive	.50
Widths over 130 in	1.00
Cutting to lengths or diameters under 3 ft. to 2 ft., inclusive	.25
Cutting to lengths or diameters under 2 ft. to 1 ft., inclusive	.50
Cutting to lengths or diameters under 1 ft.	1.55

No charge for cutting rectangular plates to lengths 3 ft. and over.

TERMS.—Net cash 30 days.

Sheets.—Makers' prices for mill shipments on sheets in carload and larger lots on which jobbers charge the usual discounts for small lots from store are as follows: Blue annealed sheets, Nos. 3 to 8, 1.55c. to 1.60c.; Nos. 9 and 10, 1.60c. to 1.65c.; Nos. 11 and 12, 1.65c. to 1.70c.; Nos. 13 and 14, 1.70c. to 1.75c. Nos. 15 and 16, 1.80c. to 1.85c. One pass, cold rolled box annealed sheets: Nos. 15 and 16, 1.90c. to 1.95c.; Nos. 17 and 21, 1.95c. to 2c.; Nos. 22 and 24, 2c. to 2.05c.; Nos. 25 and 26, 2.05c. to 2.10c.; No. 27, 2.10c. to 2.15c.; No. 28, 2.15c. to 2.20c.; No. 29, 2.20c. to 2.25c.; No. 30, 2.30c. to 2.35c. Three pass, cold rolled sheets, box annealed, are as follows: Nos. 15 and 16, 2c to 2.05c.; Nos. 17 to 21, 2.05c. to 2.10c.; Nos. 22 to 24, 2.10c. to 2.15c.; Nos. 25 and 26, 2.15c. to 2.20c.; No. 27, 2.20c. to 2.25c.; No. 28, 2.25c. to 2.30c. Galvanized sheets, Nos. 13 and 14, 2.45c.; Nos. 15 and 16, 2.50c.; Nos. 17 to 21, 2.65c.; Nos. 22 to 24, 2.85c.; Nos. 25 and 26, 2.95c. to 3c.; No. 27, 3.05c. to 3.10c.; No. 28, 3.25c. to 3.30c.; No. 29, 3.40c. to 3.45c.; No. 30, 3.60c. to 3.65c Painted roofing sheets, No. 28, $1.55 to $1.60 per square. Galvanized sheets, No. 28, $2.80 to $2.85 per square, for 2½-in. corrugations. All above prices are f.o.b. Pittsburgh, terms 30 days net, or 2 per cent. cash discount 10 days from date of invoice.

Wrought Pipe.—The following are the discounts on the Pittsburgh basing card on carloads of wrought pipe now in effect:

	Steel. Black.	Steel. Galv.	Iron. Black.	Iron. Galv.
⅛ and ¼ in.	70	54	66	..
⅜ in.	71	57	67	53
½ in.	74	62	70	58
¾ to 6 in.	78	68	74	64
7 to 12 in.	72	57	68	53
Plugged and Reamed.				
1 to 4 in.	76	66	72	62
Extra Strong, Plain Ends.				
⅛ to ¾ in.	63	51	59	47
⅞ to 4 in.	70	58	66	54
4½ to 8 in.	66	54	62	50
9, 10, 11 and 12 in.	54	42	..	..
Double Extra Strong, Plain Ends.				
½ to 8 in.	59	48	55	44

The above steel pipe discounts are for "card weight," subject to the usual variation of 5 per cent.

Boiler Tubes.—Discounts on lap welded steel and charcoal iron boiler tubes to jobbers in carloads are as follows:

	Steel.	Iron.
1 to 1¼ in.	49	43
1¾ to 2¼ in.	61	43
2½ in.	63	48
2¾ to 3 in.	69	55
6 to 13 in.	61	43

2½ in. and smaller, over 18 ft., 10 per cent. net extra.

2¾ in. and larger, over 22 ft., 10 per cent. net extra.

Less than carloads to destinations east of the Mississippi River will be sold at delivered discounts for carloads lowered by two points, for lengths 22 ft. and under; longer lengths, f.o.b. Pittsburgh.

Wire Rods.—Bessemer, open hearth and chain rods, $28.

Steel Rivets.—Structural rivets, ¾-in. and larger, 1.90c., base; cone head boiler rivets, ¾-in. and larger, 2c., base; ⅝-in. and 11-16-in. take an advance of 15c., and ½-in. and 9-16-in. take an advance of 50c.; in lengths shorter than 1-in. also take an advance of 50c. Terms are 30 days, net cash, f.o.b. mill.

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Pittsburgh

PARK BUILDING, September 21, 1910.—(*By Telegraph.*)

Pig Iron.—The very low prices ruling on iron for delivery over the remainder of this year are attractive to consumers and some sales have been made. An open hearth steel interest has bought from a Valley furnace 4500 tons of basic iron, to be shipped 1500 tons a month, for October, November and December, at $13.90 delivered, carrying a freight rate of 45c., the iron netting $13.45 to the furnace. We also note sales of 1250 tons and 1000 tons of basic at $13.50 at furnace, the freight on this iron for delivery in the Pittsburgh district being 60c. a ton. We also note sales of about 2000 tons of Bessemer at about $15, Valley furnace, and 500 tons of No. 2 foundry at $14, Valley furnace. We quote Bessemer iron at $15; basic, $13.50; No. 2 foundry, $13.75 to $14; malleable Bessemer, $14.25, and gray forge, $13.25, all at Valley furnace, with a freight rate of 90c. a ton for delivery in the Pittsburgh district.

Steel.—There is not much new inquiry for billets, sheet or tin bars, consumers being inclined to hold off in the belief that prices may be lower. A good deal of steel is in the hands of dealers who are offering small lots of billets and sheet or tin bars at 25c. to 50c. a ton less than the mills will accept. We quote: Bessemer 4 x 4 in. billets, $24.50; Bessemer sheet bars, $25.50; open hearth billets, 4 x 4 in., $25 to $25.50; open hearth sheet bars, $26 to $26.50, and forging billets, $29 to $29.50, all f.o.b. Pittsburgh, Wheeling or Youngstown districts.

(*By Mail.*)

The quietness in the iron trade seems to have increased and to have spread to several lines not heretofore affected, among these being tin plate. Small lots of Bessemer, basic and foundry pig iron are being sold right along, but many of these sales are by dealers and at lower prices than the furnaces will name. A good deal of steel in the form of billets and sheet bars is in the hands of dealers, who secure it by putting pig iron into steel plants and taking steel in exchange for it. In some cases these dealers are able to offer fair sized lots of billets, sheet and tin bars at lower prices than the larger steel mills will name. Specifications so far this month as compared with August are the same, but on some lines show a falling off. Prices are being remarkably well sustained in view of the light new demand. Prices on sheets seem to be more erratic than on any other lines of finished product, and it is said that in some cases sheets have been sold at cost or less by mills that buy bars in the open market. The coke trade is still dragging, but there has been some little betterment in the scrap market of late, the demand from consumers being better and prices somewhat higher.

Ferromanganese.—Some inquiry is noted for small lots from consumers who are not entirely covered for the remainder of this year, and several such lots have recently been sold, running from 50 to 100 tons, for delivery over the remainder of this year. We quote 80 per cent. foreign at $39.50, Baltimore, the freight to Pittsburgh being $1.95 a ton.

Rods.—There is a fair amount of inquiry, mostly for small lots, the large consumers of rods being covered by contracts against which they are specifying at a fairly liberal rate. We quote Bessemer open hearth and chain rods at $28, Pittsburgh.

Muck Bar.—Best grades of muck bar rolled from all pig iron are scarce and continue to bring $29.50 to $30, Pittsburgh, for prompt shipments.

Ferrosilicon.—Some new inquiry is in the market, but prices continue very low. We quote 50 per cent. at $56.50, Pittsburgh, for prompt shipment, and $55.50 for forward delivery. We quote 10 per cent. blast furnace silicon at $23; 11 per cent., $24; 12 per cent., $25, f.o.b. cars Jisco and Ashland furnaces.

Skelp.—There have been further sales of 3000 to 4000 tons of grooved and sheared iron skelp in the wider sizes. We quote grooved steel skelp, 1.40c. to 1.45c.; sheared steel skelp, 1.50c. to 1.55c.; grooved iron skelp, 1.75c. to 1.80c., and sheared iron skelp, 1.85c. to 1.90c., all f.o.b. Pittsburgh, usual terms.

Steel Rails.—A fair amount of new tonnage in light rails was booked by the Carnegie Steel Company last week, and specifications against contracts continue active. We quote standard sections of Bessemer rails at $28, mill, and light rails as follows: 8 to 10 lb., $32; 12 to 14 lb., $29; 16, 20 and 25 lb., $28; 30 and 35 lb., $27.75, and 40 and 45 lb., $27, Pittsburgh. We quote steel axles at 1.75c. to 1.80c., and splice bars at 1.50c., at mill.

Structural Material.—The McClintic-Marshall Construction Company has taken three new buildings for the International Harvester Company at Springfield, Ohio, about 1200 tons. Inquiries in the past week or two are reported as a little better and a considerable amount of new work is under way. We continue to quote beams and channels up to 15-in. at 1.40c. f.o.b. Pittsburgh.

Plates.—The new demand is very dull and all the plate mills are in need of work. Several were shut down last week waiting for orders to accumulate. We continue to quote ¼-in. and heavier plates in the wide sizes at 1.40c., Pittsburgh, but for delivery at certain competitive points, and for desirable tonnage, a slightly lower price is sometimes named. On the narrower sizes of plates 1.35c., Pittsburgh, by three or four of the outside mills is being done.

Sheets.—The new demand for sheets is reported slightly better, probably largely due to the low prices that are being named by some mills for delivery over remainder of this year. Box annealed, one pass cold rolled black sheets, No. 28 gauge, are on the basis of about 2.15c. to 2.20c., and No. 28 galvanized at about 3.20c. to 3.25c. at maker's mill in carload and larger lots. Painted and galvanized corrugated sheets are also being materially shaded. Present prices in effect on black, galvanized and roofing sheets will be found on a previous page.

Tin Plate.—The tin plate trade, which has stood alone in activity for some time, is commencing to feel the effects of the depression in other lines, and specifications against contracts are not being received as freely as they were some time ago. The partial failure of the tomato crop in Maryland is responsible for the falling off in specifications from some of the canning companies in the Baltimore district. Prices are firm and we quote 100-lb. cokes at $3.60 per base box, f.o.b. Pittsburgh.

Bars.—New inquiries for soft steel bars and iron bars are quiet, but specifications against contracts are being received in a fairly satisfactory way. Inquiries for hard steel bars for concrete work are coming in quite freely. The best iron mills report specifications from the railroads against contracts as only fair. We quote steel bars at 1.40c. and common iron bars at 1.45c., Pittsburgh.

Spelter.—The spelter market seems to have got well controlled, with the result that prices have advanced sharply. New inquiry is reported as a little better, and we now quote prime grades of Western at 5.40c., East St. Louis, equal to 5.52½c., Pittsburgh.

Hoops and Bands.—Several makers report that specifications against contracts for hoops and bands have been coming in better so far this month than in the corresponding period in August, and are often accompanied with requests for prompt shipments, showing that stocks held by consumers are very light. We quote hoops at 1.50c. and bands at 1.40c., in carloads and larger lots, the latter subject to extras as per the steel bar card adopted September 1 last year.

Spikes.—New orders for railroad spikes are light, and in many cases railroads are holding up their specifications against contracts. We quote standard sizes of railroad spikes at 1.50c. to 1.55c. for Western shipment and 1.55c. to 1.60c. for local trade. We quote small railroad and boat spikes at 1.60c. to 1.65c., base, in carload and larger lots.

Rivets.—The new demand is mostly for small lots to meet current needs, but specifications against contracts are coming in at a fairly satisfactory rate. Regular prices of 1.90c. on structural rivets and 2c. on boiler rivets continue to be shaded.

Shafting.—Specifications against contracts for shafting from the implement makers have fallen off a great deal lately, while from the automobile makers they have almost entirely stopped. Regular discounts on shafting are 55 per cent. off in carload and larger lots, and 50 per cent. off in small lots, delivered in base territory. On desirable contracts and for large lots 55 and 5 per cent. is being named.

Wire Products.—Buyers of wire and wire nails continue to limit their purchases to small lots to cover current needs. It is believed that stocks held by jobbers and the retail trade have been pretty well depleted, as, in a great many cases, new orders for nails and wire carry with them urgent requests for prompt shipment. We quote galvanized barb wire at $2; painted, $1.70; annealed fence wire, $1.50; galvanized, $1.80; wire nails, $1.70, and cut nails, $1.65, in carload and larger lots, all f.o.b. Pittsburgh, freight to destination being added.

Merchant Pipe.—Specifications and orders so far this month are reported fully as heavy as in the corresponding period in August, and on the larger sizes the mills are pretty well filled for the remainder of this year. The new demand for merchant or butt weld sizes has been dull for a long

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time, and the mills have not much tonnage on the smaller sizes on their books. About the only large active inquiry in the market for line pipe is that of the Busch-Everett Syndicate, which proposes to pipe natural gas from Shreveport, La., to St. Louis, but, as it is so late in the year, it is not likely anything will be done with it until next year. It is stated that regular discounts on iron and steel pipe are being fairly well maintained.

Boiler Tubes.—There is a moderate demand for railroad tubes, on which the mills have a fair amount of business booked, but merchant tubes are very dull, discounts being more or less shaded.

Coke.—There is no betterment to note in the coke market, either in demand or prices. The output in the Upper and Lower Connellsville regions last week was 341,734 tons, showing a falling off as compared with the first week of this year of more than 100,000 tons, and there is still too much coke being made. No large inquiries are in the market for either furnace or foundry coke. We quote standard makes of furnace coke at $1.60 to $1.65 per net ton, at oven, for prompt shipment, and $1.75 to $1.80 on contracts for delivery over the remainder of this year. Prompt 72-hour foundry coke is about $2.10 to $2.25 per net ton, at oven, and on contracts from $2.25 to $2.50, at oven. Some grades of both furnace and foundry coke that do not run high in quality are offered at lower prices.

Iron and Steel Scrap.—It is stated that prices bid by dealers on the scrap lists of the Norfolk & Western, Pennsylvania Railroad Lines East and two of the Southern roads, which closed last week, were from 25c. to 50c. a ton higher than the bids on the same lists a month ago. There is more inquiry for scrap from consumers and dealers are firmer in their ideas as to prices. However, it is not believed that prices on scrap can advance very materially until there is some betterment in the pig iron market, these two commodities usually advancing or declining together. We note a particularly active demand for bundled sheet scrap, borings and turnings. Dealers quote about as follows, per gross ton, for delivery in the Pittsburgh district or elsewhere, as noted:

Heavy steel scrap, Steubenville, Follansbee, Sharon, Monessen and Pittsburgh delivery	$14.50 to $14.75
No. 1 foundry cast	14.00 to 14.25
No. 2 foundry cast	13.00 to 13.25
Bundled sheet scrap, at point of shipment	10.50 to 10.75
Rerolling rails, Newark and Cambridge, Ohio, and Cumberland, Md.	16.25 to 16.50
No. 1 railroad malleable scrap	14.00 to 14.25
Grate bars	12.00 to 12.25
Low phosphorus melting stock	18.00 to 18.50
Iron car axles	24.50 to 25.00
Steel car axles	21.50 to 22.00
Locomotive axles	25.00 to 25.50
No. 1 busheling scrap	12.75 to 13.00
No. 2 busheling scrap	8.50 to 8.75
Old car wheels	14.00 to 14.25
Sheet bar crop ends	16.00 to 16.25
Cast iron borings	8.25 to 8.50
Machine shop turnings	9.50 to 9.75

Chicago

FISHER BUILDING, September 21, 1910.—(*By Telegraph.*)

Physical conditions throughout are very favorable for business. The corn crop is so far matured that it is beyond danger of serious frost damage and the yield promises to be very large. It is generally estimated that crops this year of all kinds have reached a higher average value than ever before in the history of the West. The distributing trade is very active in all articles of general consumption like hardware. Railroad earnings show an increase over last year. The iron and steel business, however, continues to drag along. The steel mills report a moderate improvement the past week in the amount of new business, but buying is still short of the usual volume at this season, especially in heavier finished products. There are more inquiries for rails and one order for 1000 cars was given by a Western road last week, but railroad purchases are generally restricted to the minimum or urgent requirements. Car repairs are limited to patch work instead of the thorough overhauling of equipment which is customary at this season. Another depressing feature in the market for structural plates and shapes is that builders have been unable for some time to obtain satisfactory loans for the construction of large buildings, making large contracts of this character few and far between. Important railroad terminal work in Western cities involving large amounts of steel is also delayed by inability to place bonds. Outside the range of these depressing influences business is generally satisfactory, and the improvement is working up slowly from the foundation of favorable agricultural conditions. There are no pending labor troubles of any moment; the coal strike is settled at last and general confidence is expressed in a gradual improvement in the steel industry. The scrap market remains weak and featureless, reflecting no change in the current demand.

Pig Iron.—The refusal of the furnace interests to sell for next year has had a dampening effect on the iron market, and trading is not so active as it was two or three weeks ago. One Southern interest has made a few sales for first quarter or first half at $11.50, Birmingham, but only to hold customers who wanted to cover their commitments on their finished products. With this exception both the Northern and Southern furnaces selling in this territory are holding firm in refusing to quote for next year except at figures which are nominal, representing usually $1 over the current price. Southern iron is a little weaker for current shipments than two or three weeks ago. There are more furnaces willing to take business for last quarter at $11, but sales at this price are closely confined to high phosphorus iron from Tennessee furnaces. If a buyer wanted a large lot of Southern iron for last quarter it is probable that $11 could be shaded, but there are no inquiries reported of this character for foundry iron, except one from a manufacturer at Kenosha, Wis., which has been withdrawn. While this weakness exists it is due to the fact that there is so little demand for last quarter. Sales of a few thousand tons would probably relieve the pressure. In Northern iron the local furnaces insist that $16, at furnace, is their minimum for the current lots which they are selling. This price might be shaded on a large tonnage for prompt shipment, but no inquiries are reported except for small lots of a few hundred tons. Current prices, however, are quoted 25c. lower. The foundries in this district appear to be well covered for the last quarter, except for the small lots which they buy to even up their mixtures. The malleable foundries are insistent in their effort to buy for next year, owing to the fact that they sell their castings on long term contracts, but are unwilling to pay an advance of $1 a ton, which is asked by local furnaces on inquiries for the first half. The following quotations are for September shipment, Chicago delivery:

Lake Superior charcoal	$18.25 to $18.75
Northern coke foundry, No. 1	16.75 to 17.25
Northern coke foundry, No. 2	16.25 to 16.75
Northern coke foundry, No. 3	16.00 to 16.25
Northern Scotch, No. 1	17.25 to 17.75
Southern coke, No. 1	15.85 to 16.35
Southern coke, No. 2	15.35 to 15.85
Southern coke, No. 3	15.10 to 15.60
Southern coke, No. 4	14.85 to 15.35
Southern coke, No. 1 soft	15.85 to 16.35
Southern coke, No. 2 soft	15.35 to 15.85
Southern gray forge	14.60 to 15.10
Southern mottled	14.60 to 15.10
Malleable Bessemer	16.25 to 16.75
Standard Bessemer	17.40 to 17.90
Jackson Co. and Kentucky silvery, 6%	19.40 to 19.90
Jackson Co. and Kentucky silvery, 8%	20.40 to 20.90
Jackson Co. and Kentucky silvery, 10%	21.40 to 21.90

(*By Mail.*)

Billets.—There are only occasional inquiries for small lots. On any desirable tonnage a buyer could probably obtain forging billets at $28, base, Chicago, but on current lots the market is quoted at $29, Chicago.

Rails and Track Supplies.—The Chicago, Milwaukee & St. Paul has placed an additional order with the Illinois Steel Company for 5500 tons of standard rails. This road is the only one that has had new construction of any moment under way the past year. The additional orders from this company which have been placed during the past summer are on account of branches and feeders of its line to the Pacific Coast. A few other orders were taken in Chicago the past week for small lots of 500 to 1000 tons. There have been good orders in the past 10 days for light rails, most of them coming from coal mines which resumed operations last week. On small lots the mills have generally obtained $1 more for light rails than the prices quoted below. The market for track supplies is quiet, but there is still a fair amount of new business. We quote standard railroad spikes at 1.70c. to 1.80c., base; track bolts with square nuts, 2.30c. to 2.40c., base, all in carloads, Chicago. Light rails, 40 to 45 lb., $26; 30 to 35 lb., $26.75; 16, 20 and 25 lb., $27; 12 lb., $28, Chicago.

Structural Material.—Although only a few construction contracts of any moment were closed last week in the West, the mills are getting more orders for plain material. These orders come chiefly from the smaller bridge companies. In some cases, however, the larger fabricating interests have placed mill orders for fair sized lots, up to 500 tons. The smaller shops are carrying very little material in their yards and the stocks of the larger companies are becoming broken, necessitating new mill orders to complete work in hand. Only two building contracts were reported closed last week. One was the Amos Brown office building at Seattle, Wash., 400 tons, which went to the American Bridge Company. The other was the Bankers Life Building at Lincoln, Neb., 300 tons, which was taken by the Decatur Bridge Company. The American Bridge Company also booked 355 tons of turn-

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tables for the Chicago, Milwaukee & St. Paul. The authorities at Eureka, Cal., have decided on reinforced concrete for the Eel River bridge, although it will cost $50,000 more than bids submitted for a steel bridge. It would have taken 1500 tons of structural shapes and will probably require 1200 tons of reinforcing steel. There are rumors of concession in prices of fabricated material, but on plain material from mill the prices are apparently firm in this territory at 1.40c., Pittsburgh. We quote plain material from mill, 1.58c. to 1.63c., Chicago; from store, 1.80c. to 1.90c., Chicago.

Plates.—The Illinois Steel Company will furnish about 2500 tons of plates and shapes for a new lake boat to take the place of the Pere Marquette car ferryboat, which sank recently in Lake Michigan. The Atchison order for 1000 refrigerator cars is the first car order of any size that has been reported from a Western railroad in several months. There is a fair run of small orders for plates, and the principal mills in this market are holding 1.40c., Pittsburgh, as the minimum, although concessions are reported occasionally on narrow plates. We quote mill prices at 1.53c. to 1.63c., Chicago; store prices, 1.80c. to 1.90c., Chicago.

Sheets.—New sheet business is keeping up at a very satisfactory rate, especially on open hearth sheets. Concessions are only reported on very desirable orders. We quote as follows, Chicago: No. 10 annealed, 1.93c.; No. 28 black, 2.43c.; No. 28 galvanized, 3.43c. Prices from store, Chicago, are: No. 10, 2.10c. to 2.20c.; No. 12, 2.20c. to 2.30c.; No. 28 black, 2.85c. to 2.95c.; No. 28 galvanized, 3.90c. to 4c.

Bars.—The yearly buyers of soft steel bars are generally specifying the full monthly allotments on their contracts. Owing to the trouble that they had last winter in getting deliveries, the agricultural implement manufacturers generally contracted this year for very liberal amounts, acting on the theory that they could call for the tonnage if they needed it, but could refuse to furnish specifications if their trade fell off. One of the encouraging features of the market is that these buyers are not discounting the estimates made last spring of their requirements. The implement people report that the demand from their retail agents for their product is running larger than last year, but they will not be able to increase their output materially, as they operated their shops 12 to 16 hours a day last winter and worked their men to the limit. The rail stock mills are getting a fair run of orders for concrete material and other hard steel bars, and are operating at a comfortable rate, although they could do more business. The bar iron market remains stagnant, as the railroads are buying only in small lots for immediate delivery. The railroads appear to be doing only makeshift repair work on their equipment, requiring smaller lots of bars than if they were making thorough repairs. Prices on all grades of bars are practically unchanged in this market. We quote as follows: Soft steel bars, 1.58c. to 1.63c.; bar iron, 1.37½c. to 1.40c.; hard steel bars rolled from old rails, 1.45c. to 1.55c., all Chicago. From store, soft steel bars, 1.80c. to 1.90c.

Merchant Steel.—Specifications from manufacturing buyers are keeping up at a very satisfactory rate. There is a good demand for tool steel from store, and there is also a normal store demand for the general run of merchant mill products. The abnormal orders from automobile manufacturers, who were short of material last spring, are no longer a feature of the market, but the regular demand from store is holding about even.

Cast Iron Pipe.—The letting of 1200 tons of water pipe at Miles City, Mont., went to the American Cast Iron Pipe Company, Birmingham, Ala. The United States Cast Iron Pipe & Foundry Company booked 500 tons of water pipe at Russell, Kan., last week. There is a fair amount of routine inquiry. On current business we quote, per net ton, Chicago, as follows: Water pipe, 4-in., $27; 6 to 12 in., $26; 16-in. and up, $25, with $1 extra for gas pipe.

Rods and Wire.—A stocking up movement on a moderate scale is still in progress among jobbers and dealers. The demand is especially good for nails, but orders for plain wire are keeping up at a good rate. Industrial buyers of wire are specifying larger quantities than a month or six weeks ago. The fall trade in barb wire is about over and sales for spring shipment have not begun, making this branch of the trade relatively quiet. Jobbers' carload prices, which are quoted to manufacturing buyers, are as follows: Plain wire, No. 9 and coarser, base, 1.68c.; wire nails, 1.88c.; painted barb wire, 1.88c.; galvanized, 2.18c., all Chicago.

Old Material.—There is a stronger undertone in the demand for steel scrap, confined chiefly to special lines of material like railroad springs and couplers and knuckles, which are favored by malleable and steel foundries. Recent bids on railroad lists brought out prices about 50c. higher than this material has realized for several months. In other lines of old material, however, the market is quiet and dull, and would probably be much weaker if receipts were as large as they usually are at this season. Cars are scarce for loading scrap, as everything that will carry coal is being used in the coal trade, and this condition may continue several months, making a lighter movement of old material this fall. The foundries are steady buyers of cast scrap, and railroad malleable is also in a little better demand. Railroads have been offered a little better price for rerolling rails than the mills are paying for prompt delivery from dealers, but the material offered on railroad lists usually does not arrive for 30 to 60 days. On the whole the scrap market has failed to reflect any improvement in business conditions. The prices quoted below are for delivery to buyers' works, all freight and switching charges paid. Sellers of scrap usually receive 50c. to $1 less in this district, owing to high switching charges. Following prices are per gross ton, delivered, Chicago:

Old iron rails	$16.00 to $16.50
Old steel rails, rerolling	15.25 to 15.75
Old steel rails, less than 3 ft	13.50 to 14.00
Relaying rails, standard sections, subject to inspection	24.00 to 25.00
Old car wheels	14.00 to 14.50
Heavy melting steel scrap	12.25 to 12.75
Frogs, switches and guards, cut apart	12.25 to 12.75
Shoveling steel	11.75 to 12.25

The following quotations are per net ton:

Iron angles and splice bars	$14.00 to $14.50
Iron car axles	19.50 to 20.00
Steel car axles	19.50 to 20.00
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	11.00 to 11.50
Springs, knuckles and couplers	11.75 to 12.25
Locomotive tires, smooth	17.00 to 17.50
No. 1 dealers' forge	10.50 to 11.00
Steel axle turnings	8.50 to 9.00
Machine shop turnings	7.00 to 7.50
Cast and mixed borings	4.75 to 5.25
No. 1 busheling	10.00 to 10.50
No. 2 busheling	8.00 to 8.50
No. 1 boilers, cut to sheets and rings	9.00 to 9.50
No. 1 cast scrap	12.75 to 13.25
Stove plate and light cast scrap	11.00 to 11.50
Railroad malleable	11.25 to 11.75
Agricultural malleable	10.50 to 11.00
Pipes and flues	9.25 to 9.75

Philadelphia

PHILADELPHIA, PA., September 20, 1910.

While there has been a better movement in pig iron, transactions in finished materials have been less active. Both foundry and steel making grades of iron figure in the week's sales and an improved inquiry, both for near future and forward delivery, is to be noted. Prices have been comparatively well maintained, but no open quotations for 1911 delivery are reported. The situation in finished materials is rather hard to define. There have apparently been no deflections in this territory from recent prices for plates and shapes, even though business is lighter. Billets are lower, ordinary open hearth rolling steel being easily 50c. under last week's quotations. Sheets have also been marked down a tenth, and for round lots this week's quotations could probably be shaded. Refined iron bars are dull and prices are easier. The old material market is a trifle stronger on moderate sales of steel and wrought scrap at slightly higher prices. It is stated that the recent buying arrangement of a number of the Eastern rolling mills, to get their supplies through a central purchaser, has fallen through; the leading consumer, at least, is now making inquiries and some purchases in the open market. Indications that the purchasing arrangement of the steel mills will be discontinued are also to be noted.

Iron Ore.—Arrangements have been concluded in several instances by which postponements in deliveries of foreign ores, recently asked for by consumers and tentatively agreed upon by sellers, have been definitely decided. As a result of this shipments from two foreign districts, aggregating 150,000 tons, sold for this year's delivery, will be postponed. This ore will be taken by the purchasers during the first half of next year. Very little interest as far as purchases of fresh supplies of ore is to be noted, although a sale of a cargo of about 5000 tons of low phosphorus ore to a furnace in this district is reported. Importations at this port during the week have been light, aggregating 10,257 tons, valued at $17,726.

Pig Iron.—Purchases during the week have been on a somewhat larger basis and buying has become a little more general, particularly for requirements for the remainder of the year. In the foundry grades there have been more sales in 200 and 300 ton lots, both of No. 2 X and No. 2 plain, for the greater part at unchanged prices, although one or two sellers have accepted the old differential of 50c. a ton between those grades when competition has been sharp. For standard brands of eastern Pennsylvania No. 2 X foundry $16, delivered, appears to continue to be the minimum, and, while the majority of sellers refuse to sell No. 2

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plain at less than $15.75, sales have been made at $15.50, and other sellers now express their willingness to accept the lower figure for desirable orders. A very fair volume of small, prompt lot sales is reported, on which most sellers firmly maintain quotations. The cast iron pipe foundries have purchased several moderate quantities. A sale of a mixed lot of 2000 tons is reported at $14.50 to $15.75, delivered, according to grade. A sale of 3000 tons of Virginia low grade iron to a pipe foundry in that territory, for first quarter of 1911, is also reported at a price about equal to $10.50, Birmingham, for forge iron. Moderate sales of Virginia No. 2 X and No. 2 plain have been taken by consumers in this territory at prices ranging from $16 to $16.50, delivered, for No. 2 X, and $16 for No. 2 plain. While the greater proportion of these sales have been for prompt shipments, they have in some instances extended over the remainder of the year. The majority of the producers of foundry grades still hesitate when it comes to naming prices for early 1911 delivery. Consumers, however, are feeling around more extensively, largely for moderate lots, on which sellers refuse to commit themselves. Transactions in forge iron have been light, small lots selling for this year's shipment at unchanged prices. As a rule sellers are not anxious to take much business at the present level, which they contend is below cost, and now that something definite in connection with the postponement of deliveries on certain foreign ores has been decided upon, they find themselves in better shape to consider the curtailment of production during the remainder of the year. Further sales of basic iron for last quarter shipment are to be noted. One lot of 4000 tons was sold at $15, delivered, while something over 5000 tons was taken by another consumer on a readjustment basis in connection with an existing contract at higher prices. A sale of 1500 tons of Virginia basic for the first quarter of 1911, for Western delivery, is also reported at a price said to be around $13.75, furnace. For new business $15, delivered, appears to be the minimum quotation for standard eastern Pennsylvania brands of basic iron. Sales of low phosphorus iron have been light, at unchanged prices. An Eastern consumer is in the market, however, for 5000 tons for this year's delivery. The general range of prices for the different grades of standard brands, delivered in buyers' yards in this vicinity, during the remainder of the year, is about as follows:

Eastern Pennsylvania, No. 2 X foundry	$16.00 to $16.25
Eastern Pennsylvania, No. 2 plain	15.50 to 15.75
Virginia, No. 2 X foundry	16.00 to 16.50
Virginia, No. 2 plain	16.00 to 16.25
Gray forge	14.75 to 15.00
Basic	15.00
Standard low phosphorus	22.50 to 22.75

Ferromanganese.—The first sale of any importance which has been made to consumers in this district was announced to-day, an Eastern steel mill taking 500 tons for delivery during the first half of 1911 at $39.50, seaboard. A fair amount of small lot buying is also reported in the West.

Billets.—More inquiry for rolling billets is reported, but prospective buyers are endeavoring to get further price concessions and little business has been placed. Inquiries for one 6000 and one 1500 ton lot, as well as smaller tonnages, are before the trade, and while $26.50 has been done for moderate lots of ordinary rolling billets, delivered in this territory, further concessions for large lots could no doubt be had. A fair volume of business is being offered in forging billets, which are quotable at about $28, Eastern mill, to which the usual extras for high carbons and special sizes must be added.

Plates.—A smaller volume of new business has been coming out and that closed has been mostly of the miscellaneous lot class. While rumors of price concessions are heard of, producers in the East are holding recent quotations and contend that reports of concessions are without foundation. Under the circumstances, however, buyers await further developments before placing business. No particularly large inquiry is in sight, although moderate lots of tank and boat plates are being figured on. Quotations are unchanged, 1.55c. for ordinary plates, delivered in buyers' yards in this territory, representing about the minimum.

Structural Material.—The demand has been less active and confined closely to small lots. Pending business for fabricated structural work which has recently been figured on for several additions to hotels and buildings is still unclosed, and no further large work has come out. Mills are about able to maintain their recent rate of production, but are cutting into orders on their books pretty sharply. No price concessions are reported, 1.55c. being the minimum quotation for plain shapes delivered in this district.

Sheets.—The demand is rather ragged and in the majority of instances mills have little tonnage on their books. Price cutting in the West has influenced the situation in this territory and lower figures are named by producers in the East, and even at the present level are not strong. The demand is entirely of a hand to mouth character, consumers waiting more stable conditions before placing orders for any large quantities. For ordinary business Eastern makers name the following range for prompt shipment: Nos. 18 to 20, 2.50c.; Nos. 22 to 24, 2.60c.; Nos. 25 and 26, 2.70c.; No. 27, 2.80c.; No. 28, 2.90c.

Bars.—Irregularity continues to characterize the market. Occasional fair sized orders come out, but competition keeps prices weak and uncertain. While 1.40c., delivered here, is the minimum open quotation for refined iron bars, this figure can no doubt be shaded for desirable specifications. Steel bars are in fair demand with prices unchanged at 1.55c. to 1.60c., delivered in this vicinity.

Coke.—Sales of small lots of foundry coke continue to be made for both prompt and forward delivery, but the market is not active, although prices remain firm. Furnace coke shows but little movement. The following range of prices per net ton, delivered in buyers' yards in this territory, is named:

Connellsville furnace coke	$4.00 to $4.15
Foundry coke	4.50 to 4.75
Mountain furnace coke	3.60 to 3.75
Foundry coke	4.10 to 4.35

Old Material.—The arrangement by which a number of the Eastern rolling mills purchased their supplies through a central buyer is somewhat disarranged; at least the most important consumer is now asking for prices and making purchases in the open market. It is also rumored that the arrangement of the steel mills is not working as satisfactorily in some directions as was anticipated. The buyer for the latter advanced the offering price for No. 1 heavy melting steel to $14, delivered, at which figure it is claimed that 10,000 to 15,000 tons were purchased. Sales to outside mills have been made at $14.25, delivered. No. 1 railroad wrought has been more active, sales being reported at $16.25 and $16.50, delivered. In instances consumers would take tonnage of some grades, but holders of scrap refuse to let go at the present price levels. The following range about represents bids and offers for deliveries in buyers' yards, eastern Pennsylvania and nearby points, carrying a freight rate from Philadelphia ranging from 45c. to $1.35 per gross ton.

No. 1 steel scrap and crops	$14.00 to $14.25
Old steel rails, rerolling	15.50 to 16.00
Low phosphorus	19.00 to 19.50
Old steel axles	20.00 to 20.50*
Old iron axles	26.50 to 27.50*
Old iron rails	18.00 to 18.50
Old car wheels	13.75 to 14.25
No. 1 railroad wrought	16.25 to 16.75
Wrought iron pipe	13.25 to 13.75
No. 1 forge fire	12.00 to 12.50
No. 2 light iron	7.50 to 8.00
Wrought turnings	8.75 to 9.25
Cast borings	9.25 to 9.75
Machinery cast	14.00 to 14.50
Railroad malleable	13.50 to 14.00
Grate bars	11.50 to 12.00
Stove plate	10.00 to 10.50

The purchasing arrangement of the Eastern steel mills, by which their supplies of scrap were bought through a central buyer, has been quietly investigated by the Government, and while no official announcement has been made it is said that the findings have been such that they will be advised to discontinue it.

* Nominal.

Cleveland

CLEVELAND, OHIO, September 20, 1910.

Iron Ore.—Inquiry from consumers as to whether ore prices will not be reduced 50c. a ton next season has brought a reply from merchant ore firms that the matter of consideration of next year's prices has not been given any consideration and is not likely to be taken up for several months. The buying for next season's delivery is expected to start late next spring, as present indications point to large stocks of heldover ore. Shipments are becoming lighter and will show a further falling off next month. Additional ore properties will be shut down October 1. We quote prices as follows: Old Range Bessemer, $5; Mesaba Bessemer, $4.75; Old Range non-Bessemer, $4.20; Mesaba non-Bessemer, $4.

Pig Iron.—A better volume of inquiry is reported from the Central West and some fair sized sales of basic, malleable and foundry are reported for first quarter and first half delivery. The general asking price of furnaces willing to take on tonnage for delivery after January 1 is 50c. above the last quarter prices, but a large share of the sales are being made at not more than 25c. above the current prices. The local situation shows no change. Both buyers and sellers are playing a waiting game. Local furnaces are not quoting for delivery beyond January 1, and consumers, with few exceptions, are taking no interest in the market. The latter are practically covered for the remainder of the year and feel that, with the possibility that first half prices may settle

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to the present last quarter basis of $14, Valley furnace, for No. 2 foundry, there will be no advantage in buying at the present time at an advance in price for next year's delivery. Producers, on the other hand, are still looking for improved conditions that will enable them to get better prices by holding off until later in the year for opening their books for 1911 business. A very limited inquiry is reported and the few sales that have been made have been mostly for last quarter delivery. For prompt shipment and the remainder of the year we quote, delivered Clevelend, as follows:

Bessemer	$15.90
Northern foundry, No. 1	$15.00 to 15.50
Northern foundry, No. 2	14.50 to 14.75
Northern foundry, No. 3	14.00 to 14.50
Gray forge	14.00 to 14.25
Southern foundry, No. 2	15.35 to 15.85
Jackson Co. silvery, 8 per cent. silicon.	19.25 to 19.50

Coke.—There is no inquiry for furnace grades and little activity in foundry coke, consumers of the latter now being about all under contract for either the remainder of the year or through the first half. Prices are steady. We quote standard Connellsville furnace coke at $1.60 to $1.70 per net ton, at oven, for spot shipment, and $1.75 to $1.85 on contract. Connellsville 72-hour foundry coke is held at $2.10 to $2.25 per net ton, at oven, for spot shipment, and $2.25 to $2.50 on contract.

Finished Iron and Steel.—The reports from the East that a price reduction would become effective October 1, which appeared in the daily press, have had a depressing effect on the market and some business that was about to be closed has been temporarily held up. Before this disturbance appeared conditions were looking somewhat brighter. Specifications on contracts are fairly good and some new orders for plates and structural material for last quarter delivery have been placed. Actual orders, however, have nearly all been for small lots of 50 tons and under. The demand for steel bars and structural material has been quite active, but plate orders are light. Prices on steel bars and shapes are firm at the 1.40c. basis, and the only shading reported on plates is by some of the smaller mills that make only the narrow sizes. The Great Lakes Dredge & Dock Company, which has taken the contract for concrete docks for the Pennsylvania Railroad in Cleveland, has divided the 725 tons of reinforcing bars required between two of the leading steel companies. In addition to grade crossing elimination work in this city the Pennsylvania Railroad is figuring on some similar work just outside the city that will take about 2500 tons of steel. A fair amount of small structural work continues to come out. Plans will soon be out for the Y. M. C. A. building in this city, which will require considerable tonnage. The sale of 1500 tons of forging billets is reported to a Cincinnati concern. The demand for sheets is fair, but the shading in prices continues. Orders for iron bars are light and prices are stationary at 1.35c. to 1.40c., at mill.

Old Material.—The market continues dull. No outside inquiries are coming in and the only local demand is for carload lots for present needs. Mills are not contracting for future requirements. Sellers have received orders to hold back some shipments. Prices are weaker. Quotations, however, are unchanged with a few exceptions. Some of the dealers have large stocks on hand which they are holding for better prices. Dealers' prices per net ton, f.o.b. Cleveland, are as follows:

Old steel rails	$14.00 to $14.50
Old iron rails	16.00 to 16.50
Steel car axles	20.00 to 20.50
Heavy melting steel	13.00 to 13.25
Old car wheels	14.00 to 14.50
Relaying rails, 50 lb. and over	22.50 to 23.50
Agricultural malleable	12.00 to 12.50
Railroad malleable	13.00 to 13.50
Light bundled sheet scrap	9.00 to 9.50

The following prices are per net ton, f.o.b. Cleveland:

Iron car axles	$21.00 to $21.50
Cast borings	5.00 to 5.50
Iron and steel turnings and drillings	6.50 to 6.75
Steel axle turnings	8.75 to 9.00
No. 1 busheling	11.00 to 11.50
No. 1 railroad wrought	13.00 to 13.50
No. 1 cast	11.50 to 12.00
Stove plate	10.50 to 11.00
Bundled tin scrap	11.00 to 11.50

Buffalo

BUFFALO, N. Y., September 20, 1910.

Pig Iron.—There has been increased inquiry during the week for deliveries running into next year. The inquiry for the present quarter continues at about the same rate as a week ago, aggregating not over 10,000 tons outside of inquiries by radiator manufacturers, being principally for small lots of foundry grades, although including two for 1000 tons each, one of which was for delivery beginning in December. Sales have been comparatively small, but shipments on contracts have gone forward in good volume. The situation would be more encouraging from the producers' viewpoint if it were not for the low prices at which orders for first quarter and half of 1911 are being negotiated, and which in some instances are practically below cost of production. Some furnace interests are declining to take business for deliveries extending into next year except at prices 50c. to $1 above current schedules, and sales from the Buffalo district for extended deliveries have not, it is stated, aggregated as large a total as from other producing districts. Of 25,000 tons estimated to have been sold at New England points during the week, only a small proportion came to Buffalo furnaces. The market in basic has been very quiet, with no sales reported. B Furnace of the Buffalo Union Furnace Company, which was blown out for repairs August 28, was blown in again September 18. We quote prices for deliveries over remainder of year, f.o.b. Buffalo, as follows:

No. 1 X foundry	$14.75 to $15.25
No. 2 X foundry	14.50 to 14.75
No. 2 plain	14.25 to 14.50
No. 3 foundry	14.00 to 14.25
Gray forge	14.00 to 14.25
Malleable	14.75 to 15.25
Basic	15.25 to 15.75
Charcoal	18.25 to 18.75

Finished Iron and Steel.—Market conditions are very quiet, with little snap perceptible in any line except so far as the Canadian export trade is concerned, in which the inquiry continues exceedingly good for practically all lines, especially bar material from agricultural implement makers, and good sized tonnages are being negotiated. There appears to be a feeling among domestic buyers that prices will not soon advance, and as the mills are in shape to make reasonably prompt deliveries, they do not care to obligate themselves for large stocks, but will await developments. Present buying is in consequence of a hand to mouth character. There are apparently no surplus stocks, and shipments from mills on tonnage under contract continue heavy. Present consumption being large, it is probable that as soon as buyers feel they can go ahead with any degree of certainty there will be a considerable buying movement. In structural material the demand is good, and fabricating shops and erectors are busy. The Lackawanna Bridge Company has been awarded contract for the fabrication of the 2500 tons of steel required for the new additions to the plant of the New Jersey Zinc Company, at Hazard, Pa.; also for fabrication and erection of the steel for crane runway addition at the plant of the Gould Coupler Company, Depew, N. Y. Larkin & Sangster, St. Catherines, Ont., were the successful bidders for Erie barge canal contract No. 67, for two locks and other canal structures, at Lockport, N. Y., for which 1700 tons structural steel and 100 tons metal reinforcement will be required. The steel contract has not yet been sublet. The Buffalo Dredging Company has been awarded work for barge canal contract No. 50, for a dam and storage reservoir for preserving canal levels, located at Hinckley, N. Y., north of Syracuse, and which includes structural steel and iron work for the regulating gate structures, gates, valves, &c. The general contract for St. Vincent's Hospital, Erie, Pa., taking 300 tons of steel, has been let to Constable Brothers, Pittsburgh and Erie, but the steel contract has not yet been sublet. Figures are being taken this week for steel for a large machine shop at the new plant of the Niagara Machine & Tool Works, Buffalo, and revised bids are to go in on Saturday of this week for steel for the new Utica Hotel, Utica, N. Y. Mosier & Summers, Buffalo, have the contract for two New York Central Railroad freight houses at Utica, for which the steel, 100 tons, will be sublet at once.

Old Material.—The market continues to drag, with limited demand and few sales. Prices are unchanged and nominal, as follows, per gross ton, f.o.b. Buffalo:

Heavy melting steel	$12.75 to $13.25
Low phosphorus steel	17.00 to 17.50
No. 1 railroad wrought	14.00 to 14.50
No. 1 railroad and machinery cast scrap	13.25 to 13.50
Old steel axles	17.50 to 18.00
Old iron axles	22.00 to 22.50
Old car wheels	14.50 to 15.00
Railroad malleable	13.00 to 13.50
Boiler plate	10.75 to 11.25
Locomotive grate bars	10.50 to 11.00
Pipe	10.50 to 11.00
Wrought iron and soft steel turnings	6.75 to 7.25
Clean cast borings	5.75 to 6.25
No. 1 busheling scrap	11.25 to 12.00

The Buffalo offices of the Jones & Laughlin Steel Company have recently been materially enlarged to accommodate the increased force made necessary by the manufacture of new products, tin plate and wire. The office quarters, which are at 1021 to 1027 White Building, have been completely and handsomely refurnished.

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Cincinnati

CINCINNATI, OHIO, September 21, 1910.—(*By Telegraph.*)

Pig Iron.—While the inquiry is holding up fairly well no large contracts are being placed, but many sales of small lots for immediate shipments are to be noted and one prominent interest reports more of this kind of business since September 1, divided up practically into carload quantities, than it has enjoyed for the previous three months. A canvass of local foundries shows they are melting about 15 per cent. more iron now than for the corresponding period of August. Local agencies are working on an inquiry from northern Ohio for 1000 tons of No. 3 and 500 tons of No. 4 Northern and 500 tons of No. 4 Southern iron. A southern Ohio firm is also said to be in the market for 1000 tons of Northern and 500 tons of Southern, all for first half delivery. For Southern irons prices remain the same. For No. 2 foundry $11.50, Birmingham, is quoted for the remainder of the year, with some of the high phosphorus brands available at $11. It is understood that some Southern furnaces are willing to accept business at $11.50 for first quarter shipment, but generally insist that the contract shall include the purchaser's requirements for the remainder of the year. For this year's delivery Northern iron can be bought at $14.50, Ironton, and it is stated that contracts can be made for shipments extending into the first quarter at the same figure. Most of the leading interests, however, are holding out for an advance of 50c. to $1 for first quarter delivery, and are even indifferent as to taking business on that basis. The Lawrence Iron Company's furnace near Ironton, formerly operated by the Bird Iron Company, blew in last week on chilled basic iron. For immediate delivery and for the remainder of the year, based on freight rates of $3.25 from Birmingham and $1.20 from Ironton, we quote, f.o.b. Cincinnati, as follows:

Southern coke, No. 1 foundry	$14.75 to $15.25
Southern coke, No. 2 foundry	14.25 to 14.75
Southern coke, No. 3 foundry	13.75 to 14.25
Southern coke, No. 4 foundry	13.50 to 14.00
Southern coke, No. 1 soft	14.75 to 15.25
Southern coke, No. 2 soft	14.25 to 14.75
Southern gray forge	13.50 to 14.00
Ohio silvery, 8 per cent. silicon	19.20
Lake Superior coke, No. 1	16.20 to 16.70
Lake Superior coke, No. 2	15.70 to 16.20
Lake Superior coke, No. 3	15.20 to 15.70
Standard Southern car wheel	25.25 to 25.75
Lake Superior car wheel	22.25 to 22.75

(*By Mail.*)

Coke.—Shipments on contracts are moving freely, but there is little new business. It is reported that the Southern contract, mentioned last week, for about 8000 tons of furnace coke per month has been closed, but this has not been confirmed. There does not seem to be as much coke for spot shipment in the different districts that is available at the very low figures quoted for the past two weeks. Contract prices on 48-hour furnace coke for Connellsville, Pocahontas and Wise County are between $1.70 and $1.85 per net ton, at oven. The average contract price for foundry coke is $2.10, with slight advances or reductions for different grades. No change in the situation is anticipated for several weeks.

Finished Iron and Steel.—The cut in the mill price on some sizes of plates to 1.35c. has not affected the local warehouse figures which are about 1.80c. to 1.85c. Most of the mills, however, are understood to be holding out for 1.40c. Only small lots of structural material are being sold, but the total tonnage is fairly satisfactory. We quote an average warehouse price of 1.90c. for beams and channels, cut to length.

Old Material.—Some medium sized lots of No. 1 cast scrap have gone to the foundries lately, but contracts for large tonnages are scarce. Practically nothing more than a day to day business is being done so far as either buying or selling is concerned. Prices for delivery in buyers' yards, Cincinnati and southern Ohio, are as follows:

No. 1 railroad wrought, net ton	$12.50 to $13.00
Cast borings, net ton	4.50 to 5.00
Steel turnings, net ton	6.00 to 7.00
No. 1 cast scrap, net ton	11.50 to 12.50
Burnt scrap, net ton	8.00 to 9.00
Old iron axles, net ton	17.50 to 18.50
Old steel rails, gross ton	14.50 to 15.00
Relaying rails, 50 lb and up, gross ton	22.50 to 23.50
Old car wheels, gross ton	12.00 to 13.00
Heavy melting steel scrap, gross ton	12.00 to 12.50

St. Louis

ST. LOUIS, MO., September 19, 1910.

While with some offices inquiries for pig iron are more numerous than for some time, other brokers complain of dullness. Measured by sales, the past week ruled quiet. The coke market, with the exception of one large inquiry still pending, has not been active. It is noted that the number of idle cars is being rapidly reduced and local railroad men state that the traffic is increasing from week to week. Railroad buying of material and equipment is growing larger. The demand for cement is exceptionally great, and all other classes of building material are active. The demand for money is strong and rates are firm.

Coke.—Though there is some business passing, its volume, for a comparatively large coke market, was small during the past week. A large inquiry (25,000 to 30,000 tons) for foundry coke already reported, is still pending. One office reports sale of 20 cars of Connellsville foundry coke for immediate shipment, and another sold 600 tons of Virginia coke for shipment over the remainder of the year. It is also reported that an inquiry is out for 5500 to 6000 tons of Connellsville foundry for shipment up to July, 1911. There is also a moderate demand from small consumers. Complaint is made of delay in getting out coke at the ovens. We quote the market steady and fairly firm on Connellsville and easier on Virginia. Connellsville 72-hour foundry, for prompt shipment, is offered at $2.25 to $2.50 per net ton at oven, on contract, six or nine months, but for quick shipment these figures are shaded. Virginia is quoted at $2.25 for foundry and $1.75 for 48-hour, f.o.b. oven.

Pig Iron.—With some of the leading brokers the past week ruled quiet, so far as sales are concerned, but they were in receipt of a fair number of inquiries for pig iron, mainly for shipment over the first and second quarters of 1911. One of the leading offices reports the following inquiries: 300 tons high silicon, 100 tons ditto, 450 tons No. 2 Southern foundry, 500 tons ditto, shipment over the remainder of the year; 750 tons No. 2 Southern foundry, 200 tons high silicon, shipment over the first quarter of 1911; 2000 tons Northern iron, 500 tons No. 2 Southern foundry, shipment over the first half of 1911, together with about 1000 tons of various grades for shipment over the remainder of 1910. Another office reports inquiries for the following: 3000 tons No. 2 Southern foundry, shipment over the first quarter; 500 tons malleable, shipment over the first quarter, and 1000 tons ditto, shipment over the first half, together with numerous smaller lots of Southern iron of different grades, aggregating about 3000 tons. A third office mentions an inquiry for 500 tons No. 2 Southern foundry, shipment over the first half. A merchant seller reports sale of 300 tons No. 2 Southern foundry, shipment over the remainder of the year. While it is claimed that it is still possible to buy No. 2 Southern foundry for shipment over the remainder of the year at $11, the leading brokers are holding at $11.50. This price is also quoted by at least one office for this iron for the first half of 1911, though some brokers are holding at $12 and others have no price for 1911 iron. Southern Ohio is quoted at $15, f.o.b. furnace.

Finished Iron and Steel.—The leading interest reports the demand for standard rails very moderate, but there is an excellent inquiry for light rails, coming mainly from coal interests. The inquiry for structural material is light, both from city and country fabricators. There is a moderate demand for steel bars, coming both from the trade and from manufacturers. The demand for track material has improved.

Old Material.—While the leading dealers in scrap iron and steel are busy, they state that it is almost entirely with old contracts and some small current transactions, new business still being limited. There were two small lots on the market last week offered by railroads—the Wabash about 350 tons and the St. Louis & San Francisco about 250 tons. There still continues to be a good demand for relaying rails, particularly standard 56s and 60s. Some items in the list are lower. We quote dealers' prices as follows, per gross ton f.o.b. St. Louis:

Old iron rails	$14.50 to $15.00
Old steel rails, rerolling	14.00 to 14.50
Old steel rails, less than 3 ft	12.75 to 13.25
Relaying rails, standard sections, subject to inspection	24.50 to 25.00
Old car wheels	14.00 to 14.50
Heavy melting steel scrap	12.00 to 12.50
Frogs, switches and guards, cut apart	12.25 to 12.75

The following quotations are per net ton:

Iron fish plates	$12.00 to $12.50
Iron car axles	19.00 to 19.50
Steel car axles	19.00 to 19.50
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	11.00 to 11.50
Railway springs	11.00 to 11.50
Locomotive tires, smooth	16.50 to 17.00
No. 1 dealers' forge	11.00 to 11.50
Mixed borings	5.00 to 5.50
No. 1 busheling	10.50 to 11.00
No. 1 boilers, cut to sheets and rings	9.50 to 10.00
No. 1 cast scrap	11.00 to 11.50
Stove plate and light cast scrap	9.00 to 9.50
Railroad malleable	9.50 to 10.00
Agricultural malleable	8.50 to 9.00
Pipes and flues	9.50 to 10.00
Railroad sheet and tank scrap	9.00 to 9.50
Railroad grate bars	9.00 to 9.50
Machine shop turnings	8.00 to 8.50

One of the largest reinforced concrete and steel office

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buildings of the South is now being erected at El Paso, Texas., by W. L. Stevens & Co. The building runs half a block and is 12 stories high. It is especially of modern construction, in that no brick or terra cotta is being used on the exterior.

The Louisville & Nashville Railroad is reported to be in the market for 100 ballast cars.

St. Louis brokers report good activity in the demand for fluorspar.

Birmingham

BIRMINGHAM, ALA., September 19, 1910.

Pig Iron.—The question of price for the first quarter and first half of 1911 seems to be the rock on which buyers and sellers of pig iron are about to split. The buyer is thus far refusing to pay any premium for such deliveries, while the seller argues that present prices barely represent the cost of production, save to those furnaces most favorably located as to sources of raw material. If present prices yield no profit, it would seem sound logic to argue that there is nothing to be gained by selling now into next year. There have been a few sales made running into next year, with a premium of 50c. per ton for the first quarter. The sale of 18,000 tons to an Eastern water pipe manufacturer is understood to be a renewal for six months from October 1 of present contract—based upon the ruling price as reported from month to month—so that this particular sale is not to be classed as in any way fixing a market or as a guide in any sense other than the removal of that tonnage from the market for the period mentioned. It is true that the principal maker of soil pipe has covered a considerable tonnage for forward deliveries, while other makers of water and gas as well as soil pipe makers have covered their requirements in a large measure for the remainder of 1910. The radiator inquiry for 42,000 tons is still before the trade, but as this iron is for 1911 delivery it is not believed that Southern makers will offer any inducements whatever for the buyers to close up now. Prices are without doubt firmer, with the $11.50 basis practically settled as the minimum figure at which any tonnage of any grades could be had for prompt or fourth quarter, 1910, shipment.

Pig Iron Stocks.—While no systematic reports are made to any one source here as to stocks of iron on hand from month to month, yet these statistics are, as a rule, very carefully compiled from the best evidence obtainable by several interested parties, and such statistics are generally approximately correct. It has developed, however, that the information sent out early in September showing a reduction in Alabama stocks on furnace yards of as much as 100,000 tons for the month of August, were seriously in error. This came about, so it is stated, by a confusion of the Alabama stocks with the Tennessee State stocks. As a matter of fact, Alabama had on hand July 1 about 267,000 tons, while August 1 showed approximately 247,000 tons. Now the most careful estimates show there remained on yards here September 1 about 213,000 tons, of which 62,000 tons were foundry iron in warrant yards and approximately 16,000 tons were basic iron, the remainder being foundry iron free on furnace banks.

Cast Iron Pipe.—The pipe makers continue to run along with a fairly steady production, with prices unchanged. Prices f.o.b. Birmingham remain nominally on the following schedule for water pipe: 4 to 6 in., $22 to $22.50; 8 to 12 in., $21 to $21.50; over 12 in., $20 to $20.50, with the usual difference of $1 per ton extra for gas pipe.

Old Material.—The scrap iron market shows no material signs of any early revival. The railroads have been putting out lists of scrap for disposal, but prices offered them have apparently not been attractive. The demand in this district is relatively very light, and we quote as follows:

Old iron axles	$15.00 to $15.50
Old iron rails	13.50 to 14.00
Old steel axles	14.50 to 15.00
No. 1 railroad wrought	13.00 to 13.50
No. 2 railroad wrought	9.00 to 9.50
No. 1 country wrought	8.00 to 8.50
No. 2 country wrought	7.50 to 8.00
No. 1 machinery scrap	9.50 to 10.00
No. 1 steel	11.50 to 12.00
Tram car wheels	9.50 to 10.00
Standard car wheels	11.00 to 11.50
Light gas and stove plate	8.00 to 8.50

New York

NEW YORK, September 21, 1910.

Pig Iron.—More inquiry is reported, most of it, as was the case in the preceding week, being for delivery in 1911. Comparatively few foundries seem to be in need of iron for the last quarter, though several New Jersey firms have been in the market the past week—in one case for 1000 tons and in another for 500 tons—part of which will be wanted in November and December. A large Connecticut jobbing foundry has asked for prices on 3000 tons of No. 2 foundry iron and about an equal amount of soft irons, deliveries to run over the first half of 1911. Another New England buyer has made offers below the market for several thousand tons, giving the maker the privilege of shipping at any time, but the prices are not attractive to sellers. The leading cast iron pipe manufacturer is expected to buy early in October, its bid being the lowest on the Portland, Maine, contract for 21,600 tons of 42-in. water pipe. The soil pipe company, whose purchases have been made in different quarters in the past two or three weeks, took something over 20,000 tons. In connection with New York district business done by Buffalo furnaces the advance in canal freights due to the recent break in the channel is figuring to some extent. While $1 to $1.25 a ton to New York harbor was the basis of charters a few weeks ago, boat owners have been asking $1.60 to $1.75 of late, which figures out a very low Buffalo price on iron sold delivered at $15.50, for example. Prices in this district are a shade lower, Northern furnaces rather than Southern making the latest concessions. We quote as follows for iron at tidewater: Northern No. 1 foundry, $15.75 to $16.25; No. 2 X, $15.25 to $15.75; No. 2 plain, $15.25 to $15.50. Southern No. 1 foundry, $15.75 to $16; No. 2, $15.25 to $15.50.

Steel Rails.—The Colorado Fuel & Iron Company has taken two considerable rail orders recently, one from the Denver & Rio Grande for 13,600 tons and one from the San Pedro, Los Angeles & Salt Lake Railroad for 12,000 tons. The Illinois Steel Company has booked 5500 tons from the St. Paul road for shipment this year, and the same road has placed an order with the Lackawanna Steel Company. The Tennessee Coal, Iron & Railroad Company has sold 30 tons to the Chattanooga Railway & Light Company and 50 tons to the Louisiana & Pacific Railway Company. Recent foreign business includes a round lot for a Chilean railroad and 6000 to 7000 tons for Brazil.

Finished Iron and Steel.—The improvement that was expected to have begun by this time has not manifested itself as yet, and by some is not looked for before the first of next year. Some shading of prices is reported, but it appears to be confined to plates in the narrower widths, or only very desirable contracts for beams and shapes. Railroad buying in bridge material continues to be a feature of the structural transactions. The Long Island Railroad will receive bids September 24, but it is yet to be decided whether the awards will be for 12,000 tons or half that amount. The work is for bridges and grade elimination. The Erie is in the market for a 600-ton bridge at Paterson, N. J., and the Chicago & Western Indiana has asked bids on about 2500 tons for bridges. The Philadelphia & Reading is in the market for a boiler house in the mining regions of Pennsylvania, which will require 350 tons of shapes. Railroad contracts which have been closed are 900 tons for a lift bridge at Cleveland for the Lake Shore, awarded the Pennsylvania Steel Company; 700 tons in a number of small bridges for the New York, New Haven & Hartford, given to the Boston Bridge Company, and 800 tons for a bridge at Harrison, N. J., for the Pennsylvania, awarded the Phoenix Bridge Works. In New York territory contracts for structural material have been taken by Milliken Bros., 700 tons, for a loft building on East Sixteenth street; Hinkle Iron Works, 400 tons, for a loft on West Twenty-sixth street, and the American Bridge Company, 1200 tons, for a factory for the Bush Terminal on East Twenty-sixth street. Outside of New York building contracts closed include a plant for the Jacob Ullman Packing Company at Pottsville, Pa., 150 tons, taken by the Eastern Steel Company; the Brown Building, Seattle, Wash., 400 tons, taken by the American Bridge Company, and the Bankers' Life Insurance Building, Lincoln, Neb., 300 tons, taken by the Decatur Bridge & Iron Company. Several large matters are in sight, principal among them the Government post-office at the New Pennsylvania Terminal in New York City, which it is anticipated will require about 14,000 tons; inquiries are expected to come out next month. Bids close this week and a decision should be reached promptly on the 2500 tons for the Masonic Temple in San Francisco. A high school building will come into the market shortly in New York, which will need about 3000 tons. The Western Electric Company is asking bids for another building in Chicago, requiring about 1400 tons, and the International Harvester Company is in the market for 700 tons for a building at Auburn, N. Y. Quotations continue as follows: Plain structural material, plates and steel bars, 1.56c. to 1.61c., and bar iron, 1.45c. to 1.50c., all New York.

Ferroalloys.—Ferromanganese is in fair demand and the market is stronger. It is quoted in New York at $39.50, seaboard. A better demand for ferrosilicon exists and there are some inquiries out for small lots. Some sellers here have turned down bids at less than $56, seaboard, and that seems to be the prevailing price.

THE IRON AND METAL MARKETS

Cast Iron Pipe.—The successful bidder on 900 tons of water pipe on which proposals were opened by New York City September 14 was a Philadelphia firm, whose price was $22.60 per net ton. A New York firm was also a bidder on the pipe, naming $22.20, but the contract was awarded to the first named on account of the lower tender for the specials and valve boxes. No public lettings of importance are coming up in the near future in this vicinity, but pipe manufacturers report a much better inquiry from private buyers. Prices are being asked not only for fall delivery, but also for deliveries in 1911. Many consumers of pipe have bought practically nothing this year, having been influenced by the decline in the price of pig iron, and are now in such position that they need material for necessary work this fall. At the same time quite a number are inclined to take advantage of existing low prices if possible and make contracts for next year's delivery. It is hardly likely that any of the pipe founders will be willing to make extended contracts on the basis of present prices. Carload lots of 6-in. are quoted at $23.50 to $24 per net ton, tidewater.

Old Material.—Most of the offerings in this month's railroad lists were taken at higher prices. Not much was secured by dealers, but the great bulk was picked up by rolling mills and steel companies. About the only articles in these lists for which no demand has appeared were old car wheels, of which heavy quantities were offered. The general market is in better shape. Consumers have been buying from hand to mouth for so long that when any of them receive even fair orders for their own products they are almost immediately compelled to seek for scrap to cover their increased requirements. Inquiries for rolling mill stock are now coming out, which seem to indicate early buying by mills which have for some time ignored the dealers. The foundries are purchasing more than they have recently been taking, and evidently the demand for castings has been growing somewhat heavier. Steel scrap, cast scrap, malleable scrap, cast borings and rerolling steel rails are especially wanted, but almost anything can be sold now, with the exception of old car wheels and wrought turnings, for which practically no demand exists. Another cargo of Panama scrap, about 1200 tons, was sold Monday at $10.61 per ton on lighter at Hoboken, N. J., the buyer being a dealer at Elizabeth. Dealers' quotations, per gross ton, New York and vicinity, are as follows:

Rerolling rails	$12.50 to $13.00
Old girder and T rails for melting	11.50 to 12.00
Heavy melting steel scrap	11.50 to 12.00
Relaying rails	20.50 to 21.50
Standard hammered iron car axles	22.00 to 22.50
Old steel car axles	17.00 to 17.50
No. 1 railroad wrought	13.50 to 14.00
Wrought iron track scrap	12.50 to 13.00
No. 1 yard wrought, long	12.75 to 13.25
No. 1 yard wrought, short	11.75 to 12.25
Light iron	5.00 to 5.50
Cast borings	6.50 to 7.00
Wrought turnings	6.50 to 7.00
Wrought pipe	11.00 to 11.50
Old car wheels	12.00 to 12.50
No. 1 heavy cast, broken up	12.50 to 13.00
Stove plate	9.50 to 10.00
Locomotive grate bars	9.50 to 10.00
Malleable cast	12.50 to 13.00

The Fechheimer Steel & Iron Company, old material, will remove its offices October 1 from 2 Rector street, New York City, to the company's yards at 231 North Front street and the Lehigh Valley Railroad, Allentown, Pa. The removal of the offices to the yards has been for the purpose of getting in closer touch with the consuming trade.

Metal Market

NEW YORK, September 21, 1910.

THE WEEK'S PRICES

Cents Per Pound.

	Copper.			Lead.		Spelter.	
Sept.	Lake.	Electrolytic.	Tin.	New York.	St. Louis.	New York.	St. Louis.
15	12.87½	12.62½	35.20	4.40	4.30	5.50	5.35
16	12.87½	12.62½	35.15	4.40	4.30	5.50	5.35
17	12.87½	12.62½		4.40	4.30	5.60	5.45
19	12.75	12.50	35.10	4.40	4.30	5.60	5.45
20	12.75	12.50	34.80	4.40	4.30	5.60	5.45
21	12.75	12.50	34.55	4.40	4.30	5.60	5.45

A good consumers' demand for pig tin has existed during the week, but prices have gone lower because of a sharp break on the London market. Copper has receded ⅛c. Lead is quiet. Spelter continues to advance despite a light demand.

Copper.—Nominal prices on both lake and electrolytic copper have receded ⅛c., as a result of a decided falling off in the demand for the metal. It is conceded that buyers have about stocked up for their immediate needs, while the opinion is current that many consumers overbought in June when they were practically sure that curtailment of production would take place. Notwithstanding that consumers are letting the market alone, there are many in the trade who are optimistic as to the future. They predict that a restriction in production will be noticed in the next report of the Copper Producers' Association and that this will strengthen what now seems to be a rather sensitive market. Exports of copper so far this month have been heavy, amounting to 20,097 tons. An indication that this export demand is a healthy one is contained in the review of the market issued by Henry R. Merton & Co., Ltd., London, which states that there is no abatement in the activity of all the European metal consuming industries, the electrical trade being still the most flourishing. In New York to-day electrolytic copper was offered at 12.50c. and lake could be bought at 12.75c. There were some reports that offerings of outside lots of lake were made at 12.62½c., but these offerings did not include any of the best known brands. The London market closed to-day with spot copper selling at £54 15s. and futures at £55 10s. The sales amounted to 400 tons of spot and 900 tons of futures. The market was quiet.

Pig Tin.—A good business has been done in pig tin, but in the face of this the market has a downward tendency. This is due to the fact that there has been a sharp break in the London market and it now appears as though the operators who succeeded in cornering the spot supply there have lost their grip or decided that they have taken all they can out of the manipulated movement. This morning's cable from London showed that the market there had dropped £2 10s. within two days, and if the London market goes any lower this market will cease to be so sensitive to the fluctuations in the foreign quotations. Late last Wednesday afternoon there was good trading in tin in New York and fully 500 tons were bought by consumers. The market on the following day went to 35.20c., an advance of 40 points over the previous day. There was good buying on the next two days of the week, but regardless of this the market slowly fell off from 5 to 10 points a day. Yesterday the demand abated and tin could be had for spot shipment at 34.80c. This morning, as the result of the lower London cable, it receded 30 points more. The arrivals of tin this month have been light and stocks are none too plentiful here. So far this month only 1939 tons have come into American ports and there are 1850 tons afloat. A report that a leading pig tin consuming interest had shipped 500 tons of metal to England on the steamer Minnetonka last Saturday has been substantiated. It is thought that this was done for the purpose of depressing the London market. The London market closed to-day with spot tin selling at £156 10s. and futures at £156. The sales amounted to 150 tons of spot and 700 tons of futures. The market was weak. In New York this afternoon pig tin was sold for 34.55c.

Tin Plates.—Foreign tin plates advanced 1½d. this morning and the price at Swansea, Wales, is now 14s. 1½d. This advance, it is declared by American representatives of London houses, has been caused by the heavy demand and not by the London corner in pig tin. As the advance comes in the face of a sharp reduction in quotations on the raw material, this view seems to be the proper one to take. Foreign tin plate mills are nearly as far behind in their deliveries as the leading mills here, while the demand is said to be increasing. In New York the market remains as noted last week and the price for 100-lb. coke plates is $3.84.

Lead.—Little interest is being taken in lead by consumers, but the market remains firm. Outside sellers continue to ask 5 points more in the New York market than the leading interest. The metal can be had here at 4.40c., and the St. Louis market is quoted at 4.30c.

Spelter.—There has been a further advance in spelter, and sellers are now asking from 5.60c. to 5.65c., New York. It is conceded that the spelter market is being manipulated, the available metal being largely in control of producers and some large operators. The output of smelting plants has been curtailed and it looks as though the producing interests are planning to take larger profits with smaller sales. Spelter can be had in New York to-day for 5.60c. and in St. Louis for 5.45c. The Western market is said to be even stronger than the market here.

Antimony.—The market is weak and listless. The nominal prices are as follows: Cookson's, 8.15c.; Hallett's, 7.87½c.; Chinese, 99½ per cent. guaranteed, 7.40c. to 7.50c.; Hungarian grades, 7.20c. to 7.30c. It is possible that a careful buyer might be able to shade the above prices on Hallett's and Cookson's.

Old Metals.—Dealers' selling prices are unchanged, as follows:

	Cents.
Copper, heavy cut and crucible	12.25 to 12.50
Copper, heavy and wire	11.50 to 11.75
Copper, light and bottoms	10.75 to 11.00
Brass, heavy	8.00 to 8.25
Brass, light	6.75 to 7.00
Heavy machine composition	11.25 to 11.50
Clean brass turnings	7.75 to 8.00
Composition turnings	9.00 to 9.50
Lead, heavy	4.05 to 4.20
Lead, tea	3.80 to 3.95
Zinc scrap	4.15 to 4.25

The Machinery Markets

A brighter view of the machinery outlook is taken in most manufacturing centers, and from some quarters reports are unusually optimistic. An established New England machinery house reports that its year's business up to September 1 showed an increase over the largest business done during the corresponding months of any previous year. Machine tool builders generally show confidence in the future in making equipment for stock awaiting the fall demand. A better demand is coming from the automobile trade. In Philadelphia engine builders note renewed demand, and heavier buying is being done in Pittsburgh, Cleveland, Cincinnati and Detroit. Some railroads are quietly buying tools in Chicago, and in both that market and in Milwaukee there is a notable movement in agricultural implements. In the Northwest and the farther Central West light and power enterprises are attracting attention, and the demand for power machinery is especially good on the North Pacific Coast.

New York

NEW YORK, September 21, 1910.

New enterprises that will bring about an increased demand for machinery when they mature are coming forward in greater volume, but there is no appreciable increase in inquiries and the actual business being done is not very heavy. There is a good steady demand for equipment, especially in the machine tool line, but quotations are invariably being asked for on small lots. Some prospective buyers seem to be under the impression that machinery prices will reach a lower level because of the uncertainty in the markets for raw materials. Dealers and manufacturers give the assurance that this is not probable, as the equipment now in stock was made when both labor and material were costing high prices. It is apparent that manufacturers in this vicinity have more faith in the situation than some of their customers, as they are going right ahead making equipment for stock and are placing orders with the foundries for machinery castings in a fair volume. The New York Central Railroad continues to contribute rather generously toward holding up the market, but instead of sending lists out the company is making frequent inquiries for small lots and closing out without much delay. The Pennsylvania Railroad is inquiring for a few tools, but it does not appear from the specifications the company is putting out that it intends to spend any great amount of money. Manufacturers and dealers are watching the movements of the Boston & Maine Railroad closely, as it is declared on good authority that since the affairs of that company came under the management of the New York, New Haven & Hartford Railroad plans have been made to replace some of its machine shop equipment. Those in control of the railroad are seriously considering the advisability of practically doing away with the Boston & Maine shop and centralizing the repair works of that company in one or two plants of the New York, New Haven & Hartford Company's line. The equipment in the Boston & Maine shops has not been added to in a long time and those who are familiar with its affairs declare that some generous machinery purchases will have to be made in order to adequately take care of the company's repair work.

The trade in this vicinity is likely to hear shortly of requirements for electrical equipment to be used on the Pennsylvania main line through and beyond Newark, N. J. The company has completed plans to electrify its system as far as Waverley, and it is said that the company is planning to extend its electrical zone perhaps 30 miles further into New Jersey. Work on the electrification of the line to Newark, it has been announced, will be completed by April 1, 1911, and the Hudson & Manhattan Railroad Company, which operates the McAdoo tubes, will put in operation during 1911 a rapid transit line from Newark to connect with the McAdoo tubes at Jersey City. This line will be in operation by the autumn of 1911, and as the two companies are working in conjunction it is expected that when the Pennsylvania Railroad is relieved of some of its Newark traffic its plans for extending its electrical zone will be carried out.

The Bosch Magneto Company, 223-225 West Forty-sixth street, New York, has arranged to purchase about $25,000 worth of machine tools to be installed in the first unit of its proposed large shop at Brightwood, Springfield, Mass. It is understood that orders for the equipment will be given through a German machinery selling house dealing largely in American machine tools, but machinery manufactured in this country will be purchased.

The International Nickel Company, 43 Exchange place, New York, has purchased about 110 acres of ground at Roosevelt, N. J., which is near Elizabethport, where it is understood a new plant will be erected. The company has not as yet selected an architect to design the proposed building nor will any announcement be made for some time as to just what branch of manufacture the proposed plant will be devoted to. It is reported that the Orford Copper Company, which is controlled by the International Nickel Company and which is now exploiting Monel metal, composed of copper and nickel, will be in charge of the new enterprise.

The Corn Products Refining Company, 26 Broadway, New York, is arranging to make extensive additions to its large Argo works in the suburbs of Chicago, Ill. The company has 100 acres of land there and about 25 acres of property is now taken up with buildings. E. T. Bedford, president of the company, is authority for the statement that the plant will be enlarged to occupy all of the company's property. The architects are now working out the specifications and the machinery details, which include the arranging for much in the way of special machinery, in addition to a large amount of power equipment, have not been gone into as yet.

The Hilliard Clutch & Machinery Company, Elmira, N. Y., purchased about $5000 worth of additional machinery for its shops during the past week.

The Lansden Company, 54 Morris & Essex Railroad avenue, Newark, N. J., which manufactures electric wagons and trucks operated by storage batteries, has been placing orders for machinery in this market during the last week. It has been rumored in the trade for the last two years that the company expected to change the location of its plant, but because of the heavy demand for its equipment was unable to make the necessary arrangements. The property it occupies has now been sold and it is said that the company has decided to move to larger quarters.

The United States Indestructible Gasket Company, with main offices in the Hudson Terminal Building, 50 Church street, New York, is building a new plant in Brooklyn which will have an inside floor space 100 x 500 ft. The building is to be of semi-fireproof construction with steel sashes and well lighted. The new plant will afford greatly increased facilities for the manufacture of the company's products, which include gaskets, washers, multiple disk pumps, valves, stampings, formings, punches and metal specialties of all kinds. The company also makes composition gaskets of fiber felt, rawhide, &c.

The F. H. Ogden Company, consulting engineers, 9 Clinton street, Newark, N. J., are preparing plans for a factory and power house to be built at 364-368 Jelliff avenue, Newark, for Charles Oppel's Sons, manufacturers of cigar boxes. The factory will be a two-story structure, 35 x 40 ft., and the power house will be one story, 32 x 33 ft. The structure will cost about $12,000.

The Ford Motor Company, 1723 Broadway, New York, has awarded a general contract to the Industrial Engineering Company, 30 Church street, New York, for the erection of a new garage and repair shop on Jackson avenue, Long Island City. It will be a three-story brick and concrete structure, 75 x 224 ft., and a large part of the plant will be used for assembling cars and for general repair work. It is probable that the machinery details will be arranged from the Detroit plant of the motor company.

The Scott & Bowne Company, Bloomfield, N. J., manufacturers of Scott's emulsion, with New York offices at 419 Pearl street, is making alterations to its plant, which will include the erection of a new boiler and engine house. Plans were also filed in Bloomfield last week by the Simms Magneto Company, 1780 Broadway, New York, for the erection of a two-story building, which is estimated will cost $90,000 and will be 177 x 231 ft. in dimension.

The Elizabethtown Smelting Company is arranging to build and equip a small smelting plant for jewelers' refuse, &c., at 503-505 Mulberry street, Newark, N. J. The plant will include a two-story building, 35 x 40 ft., and a one-story building, 40 x 45 ft.

The Eastman Kodak Company, Kodak Park, Rochester,

THE MACHINERY MARKETS

N. Y., is making an addition to its plant which will include the installation of a 1000-kw. power plant. The company is now getting bids on the necessary boilers, engines and other power accessories.

The Board of Water Commissioners of Roslyn, N. Y., will receive bids until September 26 for constructing new water works. Plans and specifications for the needed equipment can be procured from W. E. Sexton, Mineola, L. I., who is the engineer in charge.

The Behringer Radiator Works has been incorporated at Ticonderoga, N. Y., by H. Behringer, C. Lynn of New York City and E. Behringer, Brooklyn, to manufacture sectional radiators for automobiles. Capital stock $100,000.

The New York State Training School for Girls, Hudson, N. Y., Chas. H. Strong, president Board of Managers, is receiving bids for power house equipment, including trunk steam mains, steam equipment, plumbing and electrical work.

The M. D. Knowlton Company, Rochester, N. Y., is erecting a two-story addition to its paper box factory, 100 x 142 ft., at Elizabeth and Hill streets.

The Buffalo Fertilizer Company has plans in progress for a one-story addition, 90 x 650 ft., to its plant at William and Kennedy streets and the Lehigh Valley Railroad, East Buffalo.

The city of Niagara Falls will take bids for the superstructure of its new filtration plant, which will be 100 x 180 ft. in size, two stories, constructed of sandstone, with concrete floors. Work has been started on the concrete foundations for the plant, which will cost $210,000. W. D. Robins, Niagara Falls, is engineer.

The Harrison Radiator Company, Lockport, N. Y., has been incorporated by Herbert C. Harrison, W. H. Upson, Byron V. Covert and Oscar A. Loosen of that city, with a capital stock of $50,000, and will engage in the manufacture of radiators, machinery and appliances.

Chicago

CHICAGO, ILL., September 20, 1910.

Conditions have improved somewhat the past week in the Chicago machinery market, but the trade still presents a peculiar erratic tendency. Some of the dealers report a good run of orders and inquiries, while others complain of dullness and inability to move their stocks. There are more inquiries from the smaller manufacturing industries which use machine tools and this is looked upon as a very favorable indication, as the general trade was pretty dull through the summer months. The machine tool people, however, feel the effects of the depressing influences which emanate from the financial centers. The industries which are identified with large financial interests do not seem altogether sure of the future and are backward in making improvements or extensions. Trade which depends upon general consumption or on agricultural conditions, like hardware or agricultural implements, is very good and the manufacturers in these lines are running at full capacity, but in the industries which handle heavier work there has been no actual revival in trade. The machinery dealers also feel the effects of the reaction in the automobile industry, which has taken out of the market some of the best buyers who contributed to their order books a year ago. The railroad situation also makes its influence felt. Some of the railroads are quietly buying tools for urgent necessities, but the business placed in this way does not reach large proportions. Railroad buying was suspended last summer because the roads were defeated in their efforts to obtain an immediate advance in freight rates. Since this matter went before the Interstate Commerce Commission the purchasing departments have been held down until the railroad officials could get some line on their prospects for a favorable decision from the Commission. It has become apparent in the past few weeks that the Commission is not likely to decide on the proposed advances in rates for a long time, probably not until some time next year, so that no political advantage can be gained by holding the purchasing power of the railroads in leash at the present time. The roads need new tools for their shops and this need is becoming more urgent each month. Machinery men who follow the railroad trade closely are becoming more and more mystified at the failure of the railroads to make necessary purchases.

The new machinery building of Joseph T. Ryerson & Son, Chicago, will make an important addition to the resources of the Chicago market for the display of machine tools. This will be the largest building in the United States used by any one house for the display of machinery, and it will undoubtedly attract a great deal of attention among buyers who visit this market. Unusual facilities are being provided for the demonstration of tools under actual working conditions. It has become a common practice among large machinery dealers to have demonstration rooms in which they have electric motors or other power to operate some special machine. The new Ryerson Building is not only wired with two lines of electric mains, so that motors can be set anywhere to operate a machine, but steam and high pressure water are also provided to demonstrate steam and hydraulic machinery. The buyer who wishes to take the trouble can test different machines for any work that he has in view under actual working conditions, and thus obtain very valuable information to guide him in selecting new tools. The entire floor of this new building is covered by a 15-ton electric traveling crane, which also covers a wagon platform and a railroad siding. The Ryerson plant is becoming quite a market in itself for buyers who visit Chicago, and while it is located some distance from the old machinery market on Canal street the company's line of automobiles which leave the downtown office every hour make it convenient for customers and guests of the company to visit the Ryerson market.

L. M. Oberndorf, 206 Market street, Chicago, is having plans prepared by A. S. Alschuler, 39 Jackson boulevard, for a five-story factory building 106 x 125 ft. It will be of brick and mill construction and will be equipped with electric elevators and automatic sprinkler system.

The Pyott Company, 955 Carroll avenue, Chicago, advises that it is in the market for one 32-in. lathe, with 14 or 16 ft. bed.

The Triner Scale & Mfg. Company, 2714 West Twenty-first street, Chicago, has increased its capital stock from $35,000 to $70,000.

The Central Steel & Supply Company, Railway Exchange Building, Chicago, has increased its capital stock from $10,000 to $15,000.

The Portable Elevator Mfg. Company, Bloomington, Ill., has plans drawn for an addition to its plant, 63 x 100 ft., three stories, to be equipped with an electric freight elevator. The company is in the market at present for a multiple punch 4 ft. between housings.

Alvord & Burdick, 140 Dearborn street, Chicago, are preparing plans and specifications for three 125 hp. tubular boilers to be installed in the water works plant at Richmond, Ind.

The Durand Steel Locker Company, Chicago, which recently purchased the plant of the Monarch Motor Car Company, Chicago Heights, Ill., advises that it has purchased all the machinery required for the present. It is understood, however, that an additional building will be erected in the near future.

The International Voting Machine Company, Elgin, Ill., has plans prepared for a factory building 55 x 145 ft., two stories and basement, to be erected on a site recently purchased by the company. The plant will be operated with electric power, and the only boilers used will be those required for heating purposes. The company advises that it has sufficient equipment for its present requirements.

The Star Miter Machine Company, Rockford, Ill., has filed a petition with the Secretary of State, changing its name to the Rockford Miter Box Company and increasing its capital stock to $25,000. The company has recently completed patterns for a full line of miter boxes which will more than double its capacity.

The Victor Electric Company, Chicago, has increased its capital stock from $16,100 to $330,000. Part of the additional capital will be used for the purchase of ground and the erection of a four-story factory building, having approximately 50,000 sq. ft. of floor space, more than double the space now occupied by the company.

The Rockford Tool Company, Rockford, Ill., is erecting a new factory building 64 x 120 ft., one story, which is expected to be ready for occupancy in about 30 days. The plant will be operated by electric power, and all motors and necessary equipment has been purchased.

The Decatur Railway & Light Company, Decatur, Ill., is installing in its power house at that city a 1000 kw., 2300 volt alternating current generator, direct connected to an Allis Corliss engine, a 500-kw., 550-volt, 2300-volt reversible motor generator set, a 500-kw. rotary convertor and two 500-hp. Gary boilers, together with necessary piping and connections, switchboards, &c.

The Standard Company, Chicago, manufacturer of ornamental iron, has plans prepared for the erection of a three-story factory building, 75 x 124 ft., for the construction of which Emory Stanford Hall, architect, 153 La Salle street, is receiving bids.

The Shank Company, 108 La Salle street, Chicago, builder, is erecting for its own use a manufacturing building, 104 x 216 ft.

The Brodin Mfg. Company, 2420 West Sixteenth street, Chicago, is erecting a three-story addition to its plant, 24 x 124 ft. The company manufactures metal vents and patterns and does a general supply business.

The U. S. Packing Company, Wichita Falls, Texas, is receiving bids through D. I. Davis & Co., engineers, 315 Dearborn street, Chicago, for a packing plant comprising 12 buildings, two to be six stories, to be erected at a cost of $300,000.

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Philadelphia

PHILADELPHIA, PA., September 20, 1910.

While betterment in the demand is to be noted from time to time, there is little snap to the movement, and the market for both machinery and tools has been rather spotty. Inquiry during the week has again been less pronounced and the volume of business placed against previous inquiries rather unimportant. The absence of lists covering any material tool or machinery requirements is pronounced. The railroads, while going forward with several projects in connection with repair shops, do not appear to be ready to do anything regarding the proposed equipment, and the demand from that source of buyers has been light, confined, to a large extent, to odd tools for replacement. From present indications the trade scarcely anticipates any extended tool programme from roads in this immediate vicinity until after the first of the year. There have been some preliminary inquiries from shipyards to cover cost of the machine tool equipment specified in figuring costs in order to make bids for the construction of vessels, particularly battleships for the Government, but inquiries of this character usually require considerable time before developing into orders. Engine builders note a freshening demand for their products; there has been some further inquiry for equipment of moderate horsepower and it begins to look as if some of the business which has been held up during the summer months would soon develop into orders. Builders still have considerable business on their books.

The situation regarding the activity of makers of machine tools is unchanged, an occasional cancellation of an order crops out, but plants have been going at about the same productive rate, and from work in hand can so continue for periods running from 60 days to the end of the year.

Outside of an occasional order for equipment of a special nature, nothing of interest has developed in the export trade.

The foundry trade reports unchanged conditions; new business in the way of machinery castings is light, and neither gray iron nor steel casting plants are operating, as a rule, up to normal capacity.

A fair run of business in second-hand machine tools is being done, the demand being confined to no particular line, but rather of a general nature.

Joseph Wainwright, who for some time has been connected with the local selling force of Manning, Maxwell & Moore, is now associated with the Fairbanks Company, machine tool department, calling on the trade in this district, but giving particular attention to the northern portion of Pennsylvania.

The Light Mfg. Company, Pottstown, Pa., is operating on a very satisfactory basis, although not to the top capacity of the plant. Sufficient work is on hand, however, to keep them fully engaged for six or eight months. A fair portion of new orders is coming in. This concern contemplates enlarging its foundry department approximately 50 per cent.

R. S. Newbold & Son Company, Norristown, Pa., is fairly busy in all departments. A fair run of orders comes out, but mostly small individually, which in the aggregate reach a fair total. The plant is being operated on a comparatively even basis, with sufficient work on hand to keep it so engaged for some time.

City permits have been granted to Horace H. Oler for the erection of a two-story concrete addition, 45 x 100 ft., to the machine shop of Scott & Williams, Inc., Cumberland and Amber streets.

The Wilbraham-Green Blower Company, Pottstown, Pa., has recently shipped a number of blowers for export and has further orders for foreign delivery on its books. Business during August was comparatively good, but that during the past month has been less active; the plant, however, is fully engaged.

The Royersford Foundry & Machine Company, Royersford, Pa., reports rather quiet general conditions, with inquiries a shade less numerous. There has been no particular improvement so far this month, but a better volume of business is anticipated. This company has under construction an additional story to its shipping department.

The contract for the erection of the new power plant, locomotive and car repair shop for the Pennsylvania Railroad Company at Orangeville, Md., comprising a group of brick and concrete buildings, in connection with that company's improvements at Baltimore, Md., has been awarded to Irwin & Leighton of this city.

The Midvale Steel Company will shortly begin the erection of an addition to its steel casting department, which will be located on Wissahickon avenue, below Roberts avenue. The building will be a one-story steel frame structure, 54 x 174 ft., for which the Riter-Conley Mfg. Company has the contract.

The Board of Awards, Baltimore, Md., has awarded contracts, mention of which has been previously made, for sanitary sewer contract No. 55 to B. F. Sweeten & Son for $67,671.25, and No. 56 to the Dietz Engineering Company, New York, for $17,360. The same board has awarded a valve contract for the Water Department, Baltimore city, to the Darling Pump Company.

The Southwark Foundry & Machine Company notes a better demand for general equipment, and various propositions which have been under consideration for some time show prospects of closing up at an early date. The plant continues fairly busy on business already in hand, supplemented by recent orders for condensers and engines, mostly of moderate power.

The Corrugated Bar Company, St. Louis, Mo., has placed a contract for a group of buildings for warehouse purposes to be erected at Front and Kaighns avenue, Camden, N. J., with Turner & Stewart, contractors, in the latter city. The structures will be of iron and wood, the main building measuring 90 x 285 ft. It is understood that a traveling crane and power shears are to be installed.

The Birdsboro Steel Foundry & Machine Company, Birdsboro, Pa., notes an improved inquiry during September, particularly in the finished machinery lines, some satisfactory orders for which have been placed. Quite a nice business in electrically driven pressure pumps is reported, including one for three large pumps weighing over 100,000 lb. each. Desirable business for blast furnace and rolling mill work is also in hand. The demand for steel castings is reported rather quiet. This company is now installing an electric welding outfit for use in its steel foundry department.

The Bath Motor Mfg. Company, York, Pa., has been chartered under the New Jersey laws with a capital of $300,000, and will manufacture, as one of its lines aeroplane engines for the trade. The company will work in conjunction with the K. C. K. Motor Car Company, York, Pa., which will also have motors built by the Bath Company. The manager of this company, Mr. Kirkhan, has, it is stated, built a complete aeroplane in which he has made many successful flights.

The Pennsylvania Shafting Company, Spring City, Pa., reports current tonnage and shipments fully up to the high water mark of the first half of the year. Contracts for future delivery are very good and the outlook for fall specifications is considered excellent. Immediate orders and specifications are not more than 60 to 75 per cent. of what they were prior to July first, but about equal to those of July and August. Orders and specifications on hand are sufficient to keep the company's plant in full operation for some time to come.

New England

BOSTON, MASS., September 20, 1910.

The machinery market is not active. Inquiries and orders are for small lots and single tools. The large buyers are going slowly, including the automobile people. Manufacturers and dealers agree in the opinion that the period of aggressive expansion of the latter business has passed, and that from now on, while it will be an important factor in the market, its influence will be that of an established industry, of large proportions, buying steadily and consistently. The smaller newer automobile manufacturers are holding back, especially with pleasure vehicles, and probably a large number of projected companies will be permitted to die.

In spite of complaints as to conditions the average business in the metal industries of New England is very good. The hardware and brass people are making no complaint. Those houses whose interests are closely related to the automobile industry have been affected unfavorably. The cotton mills are suffering because of the high prices of their raw materials. But striking an average reveals a volume of production not very far from normal. Individuals may criticise the statement, but with many of them the complaint is based on the fact that their business is not operating at maximum speed. Judgment is affected by outside influences, notably the political unrest. It is significant that the labor market shows little if any improvement.

An important Boston house, dealing in machine tools and mill supplies, states as its experience: "Business seems to be in very good condition with us. The month of August, which is supposed to be one of our quietest months, showed a better result than the average of our best year and in the supply end of the business we find that we have had but two months showing larger results. There was no one item in the business which was particularly large, and when we obtained the results of the month's business we

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were very highly gratified. The year's business up to September 1 shows an increase over our largest year, and it looks now as though this would be the banner year in our business. The machine tool end has not grown as fast as the supply end, but still is showing a good, healthy condition. There are no large memoranda in the market that we know of, but a great many inquiries for a few tools. The automobile line is quiet and we find them buying but small amounts either in machinery or supplies. We are not looking for any great increase during the fall, but believe that by the first of the year general business will be in good shape."

The experience of the machine tool builders of New England in the present market varies greatly. A manufacturer of lathes and drilling machines states: "The business situation at present is very difficult to analyze. While we are receiving reports that the machine tool business is not very brisk, at the same time we are receiving quite a number of orders and a great many inquiries. We are running our full force of men on full time and have from two to three months of unfilled orders on hand. We find, however, that the demand is wholly for the very best class of machines that we build. There are very few concerns considering the purchase of old style machines."

A manufacturer of planers says: "Business was very fair up to the first of August; then it dropped right off short. According to our opinion there are certain conditions which indicate a good trade this fall and winter. There are other conditions which indicate a very quiet business. It is very difficult for us to establish in our own minds what the trade will be in the near future. In the past we have been able to make a very satisfactory calculation, but we are at a loss at the present time to formulate a satisfactory opinion. We shall keep manufacturing a small stock of planers, so that we can deliver promptly, in anticipation of orders."

A builder of speed lathes, grinding and polishing machinery puts it: "At the present time we find business very satisfactory. July and August were far above last year, and the outlook seems to be quite promising." A manufacturer of special and automatic machinery, &c., states: "Business seems to be normal." A manufacturer of mechanics' tools says: "We find business slowly improving." A builder of brass working tools says that he "would certainly welcome an improved demand for machine tools." A builder of engine lathes and other machinery is of the opinion "that business will remain quiet though not extremely dull through the rest of this year and for a month or two into next year, and then I think there will be a moderate revival and fairly good business." An expression from the shaper trade is: "We were very fortunate in the spring to get orders enough to carry us through the summer months, and we still have business enough for two months. We have not, however, found business very good through July and August. We thought the first 10 days in September that there was a noticeable interest in machine tools by possible purchasers. We have been a little disappointed in direct results from the inquiries that led us to think that business was going to be better this fall. We are not at the present time able to make good deliveries excepting on machines that are coming along, which simply means that up to the present time we have had our output taken care of. But from now on we shall accumulate stock unless business picks up."

The Katahdin Iron Works property in Maine is being examined with the purpose of operating the deposits, providing the ore proves of sufficient value. J. S. Morris & Co., Portland, Maine, bankers, and Jasper Wyman, Millbridge, Maine, are interested in the development, and have employed Prof. Chester G. Gilbert to make a thorough examination of the property. In two months of labor just completed he found but little of the bog iron or any of the oxides. However, he discovered millions of tons of nearly pure pyrrhotite, which would run much more than 50 per cent. iron and 30 to 34 per cent. sulphur. Hitherto this has been regarded as valueless, but it is hoped that with the Wedge furnace the sulphur can be eliminated down to less than ½ of 1 per cent., or, in other words, to a commercial basis. It was also found that the ore gave indications of yielding three or more per cent. nickel. Professor Gilbert has not completed his laboratory tests, and a detailed statement is awaited before a decision is made as to the next step in the undertaking.

The Heft Motor Company, 149 Cannon street, Bridgeport, Conn., has been incorporated with a Connecticut charter and will manufacture internal combustion motors for marine and automobile purposes and for special motor cars. The company is now outlining its policy and will not be in the market for machinery for some time. Temporary arrangements have been made for machine work with one of the large local shops, the idea being to give the management ample time in which to decide upon equipment and methods in its own works. N. H. Heft is the president, O. S. Platt vice-president and G. Stanley Heft secretary and treasurer.

The Gillette-Vibber Company, New London, Conn., manufacturer of electric specialties, will erect a machine shop 30 x 80 ft. on Maple avenue. The company will move its present equipment to the building and does not expect to be in the market for new machinery at this time. Electric power will be purchased from the local company.

The New Home Sewing Machine Company, Orange, Mass., will rebuild an old structure, converting it into a brick factory 50 x 110 ft. It will be devoted to the box making department and its machinery will be driven by electric motors. A new building, 32 x 62 ft., two stories, will be given up to lavatories, pattern storage and office.

The Weld Mfg. Company, Bridgeport, Conn., manufacturer of buckles and safety pins, will occupy a new factory building to be erected by Frank Brandegee and others on Cedar street. The building will be 50 x 98 ft., one story.

The Winchester Repeating Arms Company, New Haven, Conn., will build a new power house, 70 x 135 ft., of brick, steel and concrete, with concrete roof. The Westinghouse, Church, Kerr Company, New York, prepared the plans.

The Boston Fire Department has made no purchases of machinery to replace that destroyed by the fire which burned the repair shop recently. The City Council adjourned without making the necessary appropriation, and nothing can be done until such action is taken. A large amount of equipment was rendered useless.

The Maine Central Railroad has purchased the Sebasticook & Moosehead Railroad, a line 15 miles in length, connecting Hartland and Main Stream, Maine.

The Boston & Maine Railroad has announced officially that it will electrify the Hoosac Tunnel, the purpose being to abolish the smoke nuisance. The plans of the engineers call for an expenditure of about $1,000,000, including the cost of electric locomotives. Both passenger and freight trains will be hauled by the new power.

The New London Ship & Engine Company, now in process of organization, is planning to occupy the works at Groton, Conn., formerly operated by the Eastern Shipbuilding Company. According to the published statement the new corporation is closely identified with the Holland Torpedo Boat Company and the Electric Boat Company, Quincy, Mass. New buildings will be constructed, including large shops, with boiler house and electric generating plant, together with an office building 70 x 100 ft., and two stories, which will be the first to be erected.

Joseph P. Landry, Uxbridge, Mass., is planning to establish a machine shop in that town which will be used in developing new textile machinery.

The Corbin Screw Corporation, New Britain, Conn., has purchased the plant and business of the Mt. Carmel Bolt & Nut Company, Mt. Carmel, Conn. The machinery is being removed to New Britain. The new owners will conduct the business on a more extensive scale.

The H. B. Smith Company, Westfield, Mass., manufacturer of heating boilers, radiators, &c., will erect a large addition to its foundry, details of the plans of which are not yet completed.

Cleveland

CLEVELAND, OHIO, September 20, 1910.

The local machinery market shows but little improvement in actual business as compared with the summer months. Some machine tool dealers note a little better volume of business, but taken altogether the change is very slight. The outlook, however, is regarded as brighter and some of the machinery houses are looking for a very good volume of business during the latter part of the fall. The better feeling is due largely to the fact that some of the railroads are getting their lists in shape and are expected to come into the market within the next few weeks. With buying once started by the railroads a good volume of business is looked for from that source, as most of the lines in this territory have purchased practically no new machinery during the past two years. The feeling in the automobile industry also shows an improvement, and additional orders that were held up by some of the Michigan plants during the summer have been reinstated. During the week no good sized inquiries came out and purchases were nearly all small tools, lathe being mostly in demand. The buying was largely scattered.

While several manufacturing concerns in this territory that have planned new plants and extensions are going ahead with these improvements, other projects, both large and small, requiring machine tool equipment, on which figures have been submitted by engineers, are being held back until general conditions become more active. This is particularly true of a number of concerns that are planning the establishment of small plants in various metal working

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lines. The plants of local machine tool builders in practically all lines are still comfortably filled with old orders.

In the foundry trade the demand for light gray castings is holding up well, but there is complaint from some of the steel foundries that orders for steel castings have fallen off somewhat.

The Cleveland Engineering Society will hold its opening meeting of the year at the Chamber of Commerce library Tuesday evening, September 27. A paper on the extensive grade crossing elimination work which will soon be started in the city will be presented by City Engineer Robert Hoffman. Copies of the paper have been sent to the engineers of all the railroads in the city that will take part in the work and they will be in attendance with written discussions of the subject. Everybody interested in this matter is invited to attend the meeting.

The Peerless Automatic Machine Company, Cleveland, that was located in a power building on West Third street that recently burned, has secured a site at West Seventy-seventh street and the Nickel Plate Railroad and has started the erection of a new plant, 55 x 117 ft. and one story. Power will be supplied from a 30-hp. gas engine which has been purchased. The plant will be equipped with a 3-ton traveling crane. It will be ready for operation about October 15. The company will make screw machine products in addition to the Peerless automatic screw machines. The company's machinery that was damaged in the fire is being repaired, so that little new equipment will be required.

The Ohio Glass & Porcelain Company is the name of a new concern which plans the erection of a large plant in West Newark, Ohio, for the manufacture of glass and porcelain products used in electrical insulation. The Newark Board of Trade has agreed to donate a 3-acre site for the plant. Five buildings of steel construction are proposed. They are a glass plant, 80 x 120 ft.; a porcelain plant, 10 x 50 ft.; a Sherrodizing plant, 25 x 75 ft.; a machine shop, 20 x 40 ft., and an assembling, packing and shipping room, 50 x 100 ft.

The Vulcan Gear Works has commenced the erection of a new plant in Pontiac, Mich., and when it is completed about January 1 the present plant in Detroit will be moved to Pontiac. The new plant will consist of a main building 55 x 200 ft., a power house, forge shop, hardening department, &c. Some new machinery equipment will be purchased. The plant will have a capacity about 200 per cent. larger than the present one. Additions will be made to the present line of products, so that a very general line of gears will be made. The concern recently secured a 4-acre site, on which the plant is being built.

The Trustees of Public Affairs of Berea, Ohio, will receive bids September 24 for the following equipment for the municipal lighting plant: One 325-hp. engine, 200 rev. per min., for direct connection to 250-kw. generator; one 250 one 150 and one 75 kva. generator, and one switchboard.

The contract for the new plant to be erected at Niagara Falls by the National Carbon Company has been awarded to the Hunkin-Conkey Construction Company, Cleveland. There will be eight buildings, one five stories and the remainder one-story structures.

The Vickers Motor Car Company is being formed in Coshocton, Ohio, to make automobiles. It will have a capital stock of $10,000. A plant is being equipped at Chestnut and Second streets. The incorporators and prospective officers of the company are E. H. McMasters, president; Carl B. Vickers, general manager; H. H. Kline, first vice-president; F. E. Watson, secretary, and William C. Meyers, sales manager.

The Board of Trustees of Public Affairs of Port Clinton, Ohio, will receive bids September 22 for the erection of a filtration plant in that village. Plans provide for a plant with a daily capacity of 1,500,000 gal. William G. Clark, Spitzer Building, Toledo, Ohio, is the consulting engineer.

The International Harvester Company will erect large additions to its plant at Springfield, Ohio, some of the contracts for which have been let. The extension plans provide for a foundry, 150 x 671 ft., and a forge building, 150 x 350 ft. The construction will be of brick and steel.

The Quad Stove Mfg. Company, Columbus, Ohio, has completed the erection of an addition to its plant, 58 x 160 ft. and two stories. This will be operated under the name of the Columbus Tinware & Camp Equipment Company, which will make a large line of tinware for household, field and camp use.

The Toledo Web Press Mfg. Company, Toledo, Ohio, has been incorporated, with a capital stock of $30,000, by J. G. MacKenzie, Charles C. Chapman, C. E. Williams, J. M. Geasser and Ben D. Vail.

The Auto Supply Mfg. Company, Cleveland, has been incorporated, with a capital stock of $10,000, to make automobile supplies. The incorporators are B. L. Wilson, T. F. Wilson, W. McStrath and C. B. Wilson.

Pittsburgh

PITTSBURGH, PA., September 20, 1910.

While the stimulating effect of fall buying in all parts of the country, particularly of general merchandise, fuel, supplies, &c., is being felt in this district to a greater extent by manufacturers other than those of the machinery building or metal working industries, the effect of increasing activity will be apparent before long in the closing of orders for additional equipment to be installed in the factories that are now operating to capacity. Despite the unevenness of the market a large volume of business in staples of all kinds is actually being transacted, and there has also been for the past few weeks a steady run of small orders, requisitions for repair parts, sheet metal work, &c., which have kept local shops fairly busy. Of the specifications covering material and machinery in considerable variety, which are known to have been prepared during the summer by the engineering departments of large industrial plants or other enterprises, only a small percentage appears to have thus far come before the trade for estimates or bids; but its submission is only a question of time, and with the quantity of work that must be done before cold weather interferes there is little danger of any collapse of the business now in prospect.

The Westinghouse Electric & Mfg. Company, Pittsburgh, has been awarded the contract for the additional power equipment of the Wheeling Traction Company's electric generating station. It will consist of a low pressure steam turbine unit of 1800 kw., operating on the exhaust from the Cooper engines in the plant and almost doubling its capacity. Two motor generator sets of 500 kw. each are also included in the order.

In order to take care of the increase in its business, the Greenville Metal Products Company, Greenville, Pa., has more than doubled its capital stock, which is now $600,000.

The Toms River Coal Company is reported incorporated by H. M. McHenry and Alex. S. Neuowich, Pittsburgh, and P. C. Perkins, Stoney Creek, N. Y., with headquarters at Pittsburgh, to engage in mining and handling coal. No further particulars have been made public.

The Citizens' Light, Heat & Power Company, Johnstown, Pa., will install an additional steam turbine and alternating current generator of 2000 kw., with exciter unit, condenser, &c., to double the capacity of its plant. The set will be ordered from one of the companies that has previously supplied equipment for the station.

In connection with its reconstructed plant at West Huntingdon, Pa., the Huntingdon Mill Work & Lumber Company has installed a number of large motors for driving the new machinery recently provided. Power with which to operate them is taken from the lines of the Penn Central Light & Power Company. The electric system of the plant will be enlarged as the needs of the business develop further.

The Wellston Furnace Company, Wellston, Ohio, is carrying on extensive exploration work on the Menominee iron range in northern Wisconsin, through the Spring Valley Mining Company, and it is probable that by the opening of next spring considerable equipment for starting operations at one or more mines will be required, as the showing thus far made is reported to be very favorable.

It is reported that steam turbine builders here will submit estimates shortly on units aggregating 4000 kw. for an addition to the main generating station of the Connecticut Company, Bridgeport, Conn.

A four-valve engine for the new municipal electric plant at Opelika, Ala., has been ordered from the Erie Engine Works, Erie, Pa. The generator will be furnished by the Ft. Wayne Company, Ft. Wayne, Ind., and power transformers by the Westinghouse Electric & Mfg. Company, Pittsburgh.

An issue of bonds to the amount of $3,100,000 is proposed by the Pittsburgh authorities for improvements to be effected in the municipal water supply system. If favorably acted upon at the November election the expenditures contemplated will include the purchase of a great deal of machinery.

Plans are stated to have been prepared by the engineering department of the American Locomotive Company for a new power house 50 x 65 ft., to be erected at Allegheny, Pa., and equipped with the best modern machinery. Further particulars can be obtained in due course by direct inquiry. Bids on the building, which is to be of brick and iron construction, are now being taken.

Builders of water works machinery are preparing tenders covering two new pumping engines or centrifugal pumps of 12,000,000 gal. daily capacity each, to be installed by the city of Evansville, Ind., for the filtration plant recently decided upon there. Any type of pump that can be guaranteed to meet the requirements of the service will be considered. There is, however, an excellent prospect that the standard

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machines of one of several manufacturers of this district will be purchased.

Plans have just been completed by the W. G. Wilkins Company, Westinghouse Building, Pittsburgh, for a five-story factory building 64 x 166 ft., to be erected by the National Casket Company, Pittsburgh.

Machinery for a power and heating plant to be installed in the new municipal building at Duquesne, Pa., will be required some time this fall.

The Weinman Machine Works, Columbus, Ohio, has been awarded the contract for two heavy duty deep well pumps, each direct connected to a Reeves vertical engine, for the water works system at Utica, Ohio. Natural gas will be used in the engines.

A pumping plant is to be installed at Morgantown, W. Va., by the Lockview Land Company. The equipment required does not appear to have been as yet purchased.

Arrangements are now being made by the American Sheet & Tin Plate Company for a new shop building, 40 x 50 ft., at Kensington, Pa.

The Greer Filter Company, Pittsburgh, will furnish the filtration equipment for the new water supply system at Miles City, Mont.

A new electrically operated plant, equipped with the most improved types of machinery, has been put in operation at Wheeling, W. Va., by the Morgan Lumber Company. All of the equipment required at present has been purchased, but more will probably be needed later on.

Boiler manufacturers represented here expect to bid on a new battery for the municipal power plant at New London, Ohio, the original equipment of which was for 125 hp.

The Homestead Valve Mfg. Company, Homestead, Pa., near Pittsburgh, has completed and placed in operation an addition to its new foundry. Both the foundry and machine shop are being operated to capacity. The company manufactures the Homestead self-locking straightway, three and four way balanced plug valves, Homestead locking cock, locomotive blow-off, angle valves, &c., and reports excellent business booked. It recently established an Eastern office at 1135 Park Row Building, New York City, in charge of Frank Boyle.

Thomas G. McBride, formerly with the James C. Lawrence Plumbing Company, E. E., Pittsburgh, recently resigned and is now general manager of the Homestead Heater & Mfg. Company, Homestead, near Pittsburgh, succeeding Myles McConnon, who recently resigned to devote more time to his personal business. The company manufactures the Homestead and Victor gas water heaters, small gas heaters, thermostatic valves, &c.

The J. S. McCormick Company, Twenty-fifth street and Allegheny Valley Railway, Pittsburgh, manufacturer of foundry facings, supplies and equipment, reports that it has recently increased the production of its Vulcan blacking or core wash to care for the growing demand, its sales being larger every year. The company is operating its manufacturing departments nearly to their capacity. A local contract recently filled included a dust arrester, McCormick sand blast, ladles from 10 tons down, cupola linings, &c., for the new foundry of the Best Mfg. Company, Oakmont, Pa.

Cincinnati

CINCINNATI, OHIO, September 20, 1910.

Machine tool builders generally have so much faith in the future that they are working their plants now on full time and the surplus tools turned out are being placed in stock. As the rule not to ship out stock tools to agents is adhered to in some quarters, the local accumulation of tools is probably more noticeable than during former years when the distant agents' warehouses were well filled up and those of the manufacturer were almost empty. The total figures, however, will show a much smaller number of tools carried by the maker now than for some previous corresponding seasons. The inquiry from the general trade continues good, and some orders are being received; but for the past few days both the railroads and automobile interests have been light purchasers. Medium sized lathes seem to have been better sellers lately than any other class of tools.

The foundry people are practically all infected with the optimistic feeling prevailing in other lines. An estimate made by several prominent local foundrymen places the working average of the Cincinnati foundries at about 75 per cent. of capacity, which is probably 15 per cent. higher than the last week of August showed.

The prevailing opinion seems to be that if politics would only simmer down the coming 12 months would be a very profitable period for all manufacturers in the Central West.

Recent announcements by the Cincinnati Union Depot & Terminal Company would indicate that preliminary work on the plans for the proposed union station will be begun in a short while. This will be one of the largest structural material jobs let in this section of the country for a number of years.

The foundations for the machine tools in the new shop of the Cincinnati-Bickford Machine Tool Company have been completed and work of installing the machinery will be pushed as rapidly as possible.

It is reported that a new coated paper company is to be incorporated at Hamilton, Ohio, with $200,000 capital stock, to erect a factory near Franklin, Ohio. J. W. Moloney, John Fisher and Walter Symes, all of Hamilton, are said to be principal interested parties.

The Christian Moerlein Brewing Company will tear down the old Elm Street Club building at 1916 Elm street, Cincinnati, and will erect on the site a three-story beer bottling plant, 107 x 220 ft., of brick, steel and concrete construction. E. F. Glafer, Cincinnati, is the architect in charge of the plans.

The new automobile plant of the Schacht Mfg. Company on Spring Grove avenue, near Mitchell street, Cincinnati, is nearly completed and work of installing the machinery has been begun. The factory is expected to be in full operation before January 1.

The Payne & Joubert Foundry Company, Birmingham, Ala., and New Orleans, La., is erecting for the Clifton Springs Distilling Company, Cincinnati, five large cast iron evaporators, each measuring over 9 ft. in diameter by 26 ft. high. The large addition to the Distilling Company's plant necessary for housing this extra equipment is of concrete and steel construction and is being built by A. Colter, contractor, Cincinnati. Five Bundy steam traps will also be installed.

The Cincinnati Lathe & Tool Company, Cincinnati, has recently received some nice export orders for lathes to be shipped to Australia and Europe. Its Australian representative, M. T. W. Eady, located at Melbourne, was a visitor last week at the company's Spring Grove avenue plant.

The Cincinnati Grinder Company, occupying the second floor of the new brick building at Colerain avenue and Alabama street, Cincinnati, and M. L. Andrew & Co., who have the lower floor, have completed the installation of their machinery and are working on full time. Business is reported by both firms as being very satisfactory.

It is reported that the Buckley Steel Castings Company, Columbus, Ohio, contemplates some further additions to its plant.

The Union Gas & Electric Company, Cincinnati, is installing an additional large generator in its plant on Plum street.

The Lagonda Mfg. Company of Springfield, Ohio, announces that it has bought out the Enterprise Machine Mfg. Company, acquiring the rights and patents for the full line of water strainers and tube cleaners manufactured by the latter company. Special attention is being paid to the development of the Lagonda-Enterprise water strainer, which has been on the market for several years and is well beyond the experimental stage. It is suitable for removing impurities from boiler feed water, circulating water, &c.

Indianapolis

INDIANAPOLIS, IND., September 20, 1910.

Artemus N. Hadley, Indianapolis, inventor of a sugar cane cutting machine, has gone to Louisiana and Cuba to make final tests of four machines he has shipped there. The machine cuts the cane, straightening it where it has been blown down, strips the leaves and tops the stalks, loading the cane into one cart and the stalks into another. The tops are thus preserved for silage, an important factor where cattle feed to mix with molasses is scarce. The present machine is the sixth model and contains all the improvements suggested in tests in the South with the previous models. He is confidence of its success and expects to build a factory for its manufacture on his return to Indianapolis. The machine does the work of 100 men.

The property of the Crozier Mfg. Company of Muncie, Ind., manufacturer of washing machines, has been sold by order of the court to George Millikan.

The International Steel & Iron Construction Company, Evansville, Ind., has been incorporated with $100,000 capital stock, to take over the business of a partnership bearing the same name.

The Bedford Foundry & Machine Company has been incorporated at Bedford, Ind., with $100,000 capital stock, to do a foundry and machine business. The directors are E. A. Sohn, J. T. Krementz and Charles Sohn.

The Ft. Wayne Trunk & Leather Company has been incorporated at Ft. Wayne, Ind., with $10,000 capital stock, to manufacture trunks. The directors are A. J. Keller, C. A. Keller and E. S. Raymond.

Thomas J. Delahunt has been appointed receiver for the

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Rider-Lewis Motor Car Company at Anderson, Ind. Suspension of operation of the plant was ordered, pending a meeting of creditors. Officers of the company say there is $90,000 of unfinished material on hand and orders for 1000 cars for 1911. The liabilities are placed at $179,000; assets at $238,000.

The Young Men's Business Club of La Fayette, Ind., has closed a deal with the Motsinger Device Mfg. Company, Pendleton, Ind., whereby it will remove its factory to La Fayette. Plans for four new buildings, with a total floor space of 25,000 sq. ft., are now being prepared, and the work of construction will be commenced at once with a view to having them completed and ready for occupancy by January 1. The company manufactures magnetos and other devices.

The Helfrich Sanitary Pottery Company, Evansville, Ind., is erecting a three-story factory building, 195 x 296 ft., but advises that it is not in the market for new equipment at the present time.

The Vulcan Plow Company, Evansville, Ind., is erecting additional floor space to its foundry, but advises that no new equipment will be installed.

The Globe Furniture Company, Evansville, Ind., is erecting a new factory building, 60 x 300 ft., three stories, a warehouse and an administration building at a cost of about $45,000.

William Harding of Connersville, Ind., has purchased the Cambridge City Carriage Works, Cambridge City, Ind. Mr. Harding was for eight years with the Rex Buggy Company of Connersville.

Among the applicants for workmen at the free employment agency of the Indiana Bureau of Statistics at Indianapolis is the Oliver Chilled Plow Works of South Bend, which needs hammermen, pressmen, temperers and assemblers.

Burton J. Westcott, president of the Westcott Motor Car Company, Richmond, Ind., says that the automobile industry, more than any other, is responsible for improvements in the quality of steel, the requirements of modern automobile construction being most drastic. Steel that proves satisfactory in service in axles or springs of motor cars, he says, will stand about anything else that may be required of it. The industry has particularly developed and demonstrated the usefulness and value of vanadium in the manufacture of steel.

The Brazil Gas Company, Brazil, Ind., is considering improvements to its plant which will provide for an ultimate increase in its capacity of about 200 per cent. Henry I. Lea, People's Gas Building, Chicago, Ill., has been retained as consulting engineer to recommend the alterations and extensions made necessary by the growth of the company's business.

Detroit

DETROIT, MICH., September 20, 1910.

The interest of machinery houses here and in the surrounding territory still centers in the demand from the general industrial field, where plans for improvements and increased facilities, as well as the starting up of entirely new enterprises, are bringing out a nice line of inquiries. The automobile trade is responsible for some buying, particularly of machinery with which to equip plants that are not yet under roof; but for the present this has been relegated to the background. While caring for the needs of motor car and truck builders, as well as auto-part manufacturers, dealers are devoting particular attention to cultivating trade with foundries, machine shops, mills and factories engaged in other branches of production; and there is evidence that the fall and winter demand from these sources will be widespread in its character.

The Gray Motor Company, Detroit, is in receipt of information concerning one of its 4 hp. gasoline engines made four years ago, which had been completely submerged in water for three months, partially dismantled, prior to being secured by its present owner. With cleaning, however, and crude makeshifts for the missing parts, it was put in operation again and ran steadily without missing.

Plans are now being completed for the new auto parts factory in Detroit of the Bower Roller Bearing Company, the initial unit of which will be two stories, 90 x 220 ft. Albert Kahn, whose office is in the Trussed Concrete Building, has charge of the plans.

Plans have been completed and contracts are being let for the new fabricating plant 115 x 200 ft., to be erected by H. B. Lewis, Detroit, the structural iron work being undertaken by the owner. Most of the equipment needed has also been provided for.

The Detroit Engine Works, Detroit, are putting on the market in considerable quantity, this fall, an internal combustion engine in sizes from 2 to 24 hp., which operates on kerosene. It is particularly adapted to the operation of pumps, sawing outfits, grinders, farm machinery and the like. It is very simple in construction, there being only three moving parts, and the design is covered by basic patents.

Bids will be taken until September 27 on the construction and equipment of a sewage pumping station at Cadillac, Mich.

Plans are being drawn for a large two-story addition to be made to the plant of the Detroit Sulphite Fiber & Paper Company, Detroit. Motors will be used throughout. Albert Danielson, Kalamazoo, Mich., who has designed many of the most modern mills of this section, is in charge of the work.

A light manufacturing plant, equipped with machinery for pulverizing, bolting and sifting toilet powders, is to be built in Grand Rapids, Mich., by the Marietta Stanley Company.

The Cass Motor Truck Company will have its new plant completed and in operation this fall at Port Huron, Mich.

Contracts are now being let for the erection of a five-story factory building, 70 x 248 ft., for the Universal Motor Truck Company, Detroit, and purchases of equipment will also be completed in the near future. The Sterling Engineering & Construction Company, Milwaukee, is in charge of the work on the plant itself.

The Canadian branch of the Linderman Machine Company, Muskegon, Mich., will build a factory at Woodstock, Ontario, equipped for the same line of production as the home company.

The installation of pumping machinery for a high pressure fire service system is under consideration at Toledo, Ohio.

Among the metal working industries of western Michigan which have been doing a good business this year are the Grand Rapids Malleable Works. For the fall and winter season an excellent trade is in prospect, and the facilities of the company may be increased.

The New Way Motor Company, Lansing, Mich., has increased its capital stock from $100,000 to $350,000, in order to provide properly for the large growth in its business. The company manufactures a very light, air-cooled gasoline engine, which is self-oiling and has all of its working parts inclosed, making a very efficient machine.

Thos. S. Walter and E. B. Barnhill, Detroit, have been granted a patent on an improved blower for cleaning water tube boilers.

A new manufacturing plant is to be established in Grand Rapids, Mich., by the Architectural Woodworking Company, whose headquarters are stated to have previously been in Philadelphia, Pa. A factory formerly in use has been secured and no additional equipment will be needed for the present.

Two steam turbines of 500 kw. each, or larger, with alternating current generators direct connected, condensers, exciter sets, &c., will probably be furnished for the municipal power plant at Grand Rapids, Mich., by the Allis-Chalmers Company on a bid submitted through its office in the Union Trust Building, Detroit.

A new factory building 100 x 142 ft., one story, will be erected at Muskegon, Mich., by the Wright-Coales & Hood Company.

The repair shop of the Duluth, South Shore & Atlantic Railway at Marquette, Mich., which was destroyed by fire, will, if continued in that location, be rebuilt along the most modern lines. The main structure was 100 x 200 ft.

Work will begin next month at Grand Rapids, Mich., on the new four-story manufacturing plant of the Imperial Furniture Company, which is to be electrically operated.

Manufacturers of this district are reported to be figuring on equipment for a new foundry to be built by the Wheeler-Langenkamp Brass Works, Indianapolis, Ind.

It is reported from Muskegon, Mich., that the Muskegon Iron Works has been organized there to establish a foundry and machine shop. Further particulars are lacking.

According to information from Escanaba, Mich., the Escanaba Traction Company will buy materials and some equipment for its new hydroelectric plant this winter, so as to be able to rush construction work in the spring. Some of the preliminary work will be done this fall while the open season lasts.

The Whipple Electric Company has been incorporated at Saginaw, Mich., for $10,000.

The Detroit Steel Products Company, Detroit, has made noteworthy progress this season in the introduction of its solid steel Fenestra window frames which are now used on many of the largest industrial plants of this city, as well as elsewhere through the country.

The Marshall Furnace Company, Marshall, Mich., is having plans prepared for a new factory building 125 x 215 ft., one story, and an office building 40 x 50 ft. Equipment to be installed has not been determined upon as yet, but estimates are now being prepared by the company.

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The Metal Products Company, Detroit, has increased its capital stock from $200,000 to $300,000. The additional capital will be used for the installation of new machinery and extra working capital.

Milwaukee

MILWAUKEE, WIS., September 19, 1910.

Buying on the part of companies engaged in the manufacture of agricultural implements has been a noticeable feature of the market lately, with prospects of a steady demand from this source throughout the fall. Electric generating sets and exciters, motors, controllers, pumps, compressors, &c., are wanted, together with various details of operating machinery. Some of this apparatus is intended for branch plants or affiliated interests abroad. The same tendency toward shop additions and betterments is also to be observed among the firms that make a specialty of gasoline or oil engines for use with farm machinery, all business in this line having received the impetus usual to the marketing of the crops.

Local shops are generally busy, while from other industrial centers of the State, such as Racine, Kenosha, Oshkosh, Eau Claire and La Crosse, come reports that manufacturing plants which have been working shorthanded are again starting in with full forces, orders in prospect being plentiful enough to justify steady production.

Orders from furnaces, mills and structural plants in the iron and steel districts are expected to follow close upon inquiries now in hand, and there will undoubtedly be some scattered buying on the part of Western railroads whose recent reports have made a favorable showing. Business in the northern part of Wisconsin and upper Michigan, which has been very slow since spring, is also showing signs of renewed activity, and local houses have some of the best salesmen on the ground, with a view to taking advantage of the first favorable openings.

The West Allis Iron Works Company, West Allis, Wis., whose organization was reported in *The Iron Age* of July 28, is about to let contracts for a new foundry, 85 x 100 ft., of brick and steel construction.

The woodworking plant of Alden Brothers, Ladysmith, Wis., which recently burned, will probably be rebuilt and somewhat extended.

The water works system at Appleton, Wis., will be purchased by the city and extensively remodeled to provide both for greater capacity and a better supply.

J. B. Sando, one of the engineers of the Allis-Chalmers Company at Milwaukee, recently read a very exhaustive paper before the Western Society of Engineers at Chicago on high pressure pumping systems for fire protection.

The Racine Mfg. Company, Racine, Wis., will soon be in the market for machinery, including electric motors, with which to equip the four-story addition to be made to its present plant, the exact dimensions of which are still to be decided upon.

The new factory building for which plans were recently made by the Ahnapee Veneer & Seating Company, Algoma, Wis., will probably not be erected until next spring.

The Appleton Chair Company, Appleton, Wis., has completed the purchase of boilers, engine, electric generators and motors for its new group of factory buildings. Some additional equipment will, however, be required before the plant is put in operation.

The Wisconsin Motor Mfg. Company, North Milwaukee, is completing its new factory building and will have all of the machinery installed before the close of the coming month.

With the co-operation of the Neenah Industrial Association, a three-story factory building, 40 x 60 ft., also dry kilns, warehouse, &c., will be erected in Neenah, Wis., by the Hardwood Products Company. A separate power plant is to be built and electric motor drive will probably be used. Among the company's principal requirements will be woodworking machinery.

It is reported from Platteville, Wis., that the large power station of the Interstate Light & Power Company at Galena, Ill., is now operating to its full capacity. The demand for commercial electric power has become so insistent, however, all through the mining districts of southwestern Wisconsin that immediate steps must be taken to enlarge the output of the plant.

A number of electric motors may be purchased this fall by the Waite Grass Carpet Company, Oshkosh, Wis.

The Petrel Motor Car Company, Milwaukee, which is headed by Thos. J. Neacy, president of the Filer & Stowell Company, announces that it has established a repair shop in connection with its automobile factory, which has all of the advantages of the large plant, being equipped for work on both motor cars and commercial vehicles.

The Worden-Allen Company, Milwaukee, has received an order for 160 tons of structural steel from the Copper Range Railway.

The installation of a new pumping unit of 5,000,000 gal. daily capacity is under consideration at Superior, Wis.

The capital stock of the Rhinelander Refrigerator Company has been increased to provide for the growth in its business, and the factory is being extended.

The Stowell Mfg. & Foundry Company, Milwaukee, is putting on more molders for both malleable and gray iron castings, having begun the fall season with a nice line of business.

The Edgerton Wagon Company, Edgerton, Wis., is completing the installation of machinery in its plant, which will be placed in operation about November 1.

The Racine Brass & Iron Company, Racine, Wis., has an addition to its plant in course of erection by the Worden-Allen Company, Milwaukee.

Castings to be used in the manufacture of agricultural machinery will be one of the specialties of the Dickson Malleable Iron Company, Milwaukee, which now has its new foundry in regular operation.

From Houghton, Mich., it is reported that operations at one of the principal shafts of the Tamarack Mining Company have been suspended in order to give opportunity for making extensive betterments, which may necessitate the purchase of a new hoisting unit and other machinery.

Two boilers of 150 hp. each, to generate steam for manufacturing and heating purposes only, and a line of electric motors, will be required in the equipment of the Ashland Paper Company's new plant at Ashland, Wis. Bids on the buildings are to be taken the latter part of this month. An engine and generator will not be needed, as power is to be purchased.

A machine designed for stripping the bark from pulpwood in the large mills will be manufactured on an extensive scale at Green Bay, Wis., by the Green Bay Barker Company, recently organized there. A factory is to be built or leased in the near future. Electric motor drive will probably be used on the shop tools and for other purposes about the plant, current being taken from the lines of the Northern Hydroelectric Company.

The contract for a steel tower, with tank of 35-000 gal. capacity, has been awarded by the city of Barron, Wis., to the U. S. Wind Engine & Pump Company.

The J. Thompson & Sons Mfg. Company, Beloit, is putting out a gasoline engine for shop and general service which has features similar in design to those of the best automobile motors and is very simple and reliable in operation.

The new ore dock of the Great Northern Railway at Superior, Wis., which is of steel construction, will be in readiness late this fall for the installation of the electrically operated handling machinery that has been ordered. This structure is 1800 ft. long, and will increase the storage and loading capacity of the road at this point to 1350 pockets.

The Mechanical Appliance Company, Milwaukee, is featuring in its sales this fall the motor-driven buffers and grinders which it manufactures, also a line of Ajax electric riveting machines, which can be operated either from a belt or direct connected motor. These machines will punch the hole, drive the rivet and head it with one pressure of the pedal, and they have features of exceptional interest to anyone concerned in this class of work.

The contract for a line of single-phase motors to be installed in the plant of the Burlington Brass Works, Burlington, Wis., has been let to the Wagner Electric Mfg. Company, St. Louis, Mo.

From Hankow, China, it is reported that representatives of one of the large machinery building companies here are supervising the erection near that city, for the provincial government, of furnaces to be used in the treatment of antimony ores, in which the viceroy has a monopoly. An attempt has been made on the part of the authorities to avoid giving publicity to the present enterprise, but it has suggestions of value to American manufacturers interested in the trade of the Orient.

Local manufacturers of power machinery are submitting bids on the equipment of an electric power and lighting plant to be built by the city of Crawfordsville, Ind., which will involve the largest contract of this kind now under consideration by any municipality.

The Marienette Iron & Metal Yards, Marienette, Wis., has erected a general machine shop to be used for overhauling second-hand machinery and repairing sawmill machinery, engines, boilers, &c.

St. Louis

ST. LOUIS, September 19, 1910.

The Victor Motor Car Company, St. Louis, which recently increased its capital stock from $30,000 to $150,000, will soon begin to enlarge its plant at the corner of Boyle avenue and Papin street to eight times its present capacity.

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The structure will be completed January 1. J. F. Harrington is president; J. L. Boogher, vice-president, and H. C. Ochterbeck, secretary.

The Century Electric Company, St. Louis, has filed a notice of an increase of its capital stock from $75,000 to $250,000.

The Glencoe Lime & Cement Company, St. Louis, has ordered a 25-hp. gasoline motor engine of the Milwaukee Locomotive Mfg. Company, Milwaukee, Wis.

The Union Sand & Material Company, St. Louis, has just installed at its Kansas City, Mo., plant, a 35-ton traction steam shovel manufactured by the Ohio Steam Shovel & Dredge Company, Cincinnati, Ohio.

The Anderson Electric Tool & Machine Company, St. Louis, manufacturer of electric grinders and drills, finds its line taking hold in satisfactory shape and the prospects quite good for this winter.

Washington University is installing about $20,000 worth of machine shop and foundry equipment. Some departures from the steretoyped lines of small tools have been made in this equipment that make the outfit unusually interesting among educational institution shops.

The various large stove manufacturers are well occupied at present and one of them has a large new plant well under way, and two other prominent ones are preparing to build new plants to supersede entirely their present quarters.

The Reuter Jones Mfg. Company, St. Louis, which gives much of its attention to its line of coffee and peanut roasting machinery, finds the general outlook very good and is getting a very fair run of business.

The St. Louis Screw Company finds business a trifle dull in the bolt line, though the screw machine department is well occupied. This plant has been growing steadily since its inception and now occupies a large steel frame modern factory building in the northern part of the city.

The Standard Railway Equipment Company, whose manufacturing department is located in East St. Louis, finds the demand for its pneumatic hammers, drills, &c., very fair. Another department of this concern specializes on patent freight car features.

The Corn Products Company, Granite City, Ill., is becoming a big industry. This concern now operates one of the most complete can making plants in the country, all processes being automatic.

The progress of Belleville, Ill., as a foundry town is one of the most interesting developments of this section. This small city has now in full operation no fewer than 15 distinct foundries. Most of these specialize on stove work and some of them manufacture stoves complete. Others make a specialty of machine castings.

The C. Hager & Sons Hinge Mfg. Company, St. Louis, Mo., is erecting a two-story addition to its factory, but advises that all necessary machinery and equipment has been contracted for.

At a recent meeting of the City Council of Guthrie, Iowa, it was voted to build a new brick pumping station. The building will be erected on the site of the old one, adjoining the city electric light and power company building.

M. Comer, 116 Gaines street, Davenport, Iowa, announces that he will begin operations in the manufacture of mattresses as soon as he can put his factory, which was recently destroyed by fire, in condition to do business. New machinery will have to be installed.

Gilmore City, Iowa, has secured the $2,000,000 mill which the Fort Dodge Portland Cement Company plans to erect. The company has already established its offices. Dr. F. D. Brandenburg is the president.

A $30,000 gas works has been secured at Clinton, Iowa, the company financed, franchise obtained and bids will soon be let. The plant will be of the most modern form of water gas.

Smith & Son's flouring mill at Tama, Iowa, was totally destroyed by fire September 7. The Kenton Pump factory, situated nearby, was on fire several times, but was not materially damaged.

The Corn Belt Packing Company, Fort Dodge, Iowa, has decided to rebuild its plant.

The Lincoln Bindery, Springfield, Ill., has been incorporated, with a capital stock of $5000. The incorporators are Frank Leeder, M. E. Penniwell and Alice Dorthirt. The plant will be at Third and Monroe streets.

The sum of $38,900 has been subscribed by the citizens of Pittsburg, Kan., towards a guarantee fund and now the steel rolling mill is practically assured.

The West Wichita Custom Mill, West Wichita, Kan., was destroyed by fire September 12. The mill is owned by E. O. Ruckles and U. G. Tuders.

The Topeka Foundry & Machine Shop, Topeka, Kan., has been sold by its former owner, Roy L. Bone, to M. Masching of St. Joseph, Mo., who will continue the business.

The city of Jellico, Tenn., has voted to issue bonds for $90,000 for the construction of a water works system and for sewerage. The commissioners elected are R. B. Baird, W. T. Lewis, A. B. Mahan and J. L. Rose.

The Dickson Air Blast Cotton Cleaning Company will establish a plant at Memphis, Tenn., in the near future for the manufacture of apparatus for the cleaning of cotton. J. G. Dickson, president of the company, states that the original investment will be $20,000, but the company will acquire land enough to admit of expansion.

A cottonseed oil factory will be built at Jackson, Tenn., by the newly organized Madison Cotton Oil Company, capital stock, $60,000, fully paid. A. C. White, T. B. Carroll and C. E. Pigford of Jackson are stockholders of the company.

The O'Neill-Bruce Light Company, Memphis, Tenn., has been incorporated with a capital stock of $50,000, to engage in the manufacture and sale of lamps. The incorporators are H. T. Bruce, C. W. Churchill, Eugene Sutcliffe and others.

The Ashdown Flour Mill & Elevator Company is being organized at Ashdown, Ark., with a capital stock of $10,000.

The Iron Mountain Railroad will build a new round-house at the Baring Cross, Ark., shops, to cost upward of $100,000. It will have a machine shop and about $35,000 worth of machinery will be installed. The round-house will handle 82 engines.

J. L. Lockaby, Murfreesboro, Ark., will erect a planing mill on a site donated by the Citizens' League.

The Hubbard Mfg. Company, Texarkana, Ark., has been organized with a capital stock of $6000. The company will manufacture barrel hoops, boxes, crates, &c. The incorporators are G. M. Hubbard, Gus Ney and J. R. Thompson.

The city of Mannsville, Okla., has voted $20,000 worth of bonds, for the purpose of putting in water works.

The contract for the building for the Woodcock Mfg. Company, Vinita, Okla., has been let and the factory is to be completed within 40 days. It is 50 x 100 ft. and of brick construction.

A system of water works will be erected at Granfield, Okla., at a cost of $44,000. The water will be brought from Red River Valley, a distance of 4 miles, where an underground river of pure water was found.

Arrangements are being made at San Marcos, Texas, to establish a gas plant.

J. T. Cameron, owner of the Cameron stock yards in El Paso, Texas, has applied for a permit to erect a packing house to cost $225,000.

The Greenville Broom Mfg. Company, Greenville, Texas, has been incorporated. The incorporators are P. P. Dransfield, F. H. McGuire and A. J. Cuming. The brick building near the fair grounds formerly used as a foundry building is being used for the new broom factory site.

A. H. Taylor, Huntsville, Texas, will erect a grist mill near the electric light and power plant.

P. E. Blalock, Courtney, Texas, is erecting a cotton seed oil mill, which will be equipped with the most modern machinery.

The Lone Star Cotton Mills, Weatherford, Texas, has been incorporated, with a capital stock of $50,000. Incorporators: C. R. Littleton, W. R. Woodhouse, Geo. C. Poston and E. H. Martin.

The Riesel gin, Riesel, Texas, was destroyed by fire September 11, entailing a loss of $12,000, on which there was $10,000 insurance. The gin was a nine-stand plant and it is expected that the new plant will have the same capacity.

The Quanah Hotel, Quanah, Texas, will be remodeled and provided with steam heaters, elevators, &c. The contemplated improvements will cost $20,000.

Work has been commenced on the paper mill building at Sugarland, Texas, formerly operated by the Cunningham Sugar Company. The plant will be taken over by the Sugarland Pulp & Paper Company, which will thoroughly rebuild and equip it with modern machinery.

The Galveston Brewing Company, Galveston, Texas, will erect in that city a thoroughly modern and complete ice plant.

Toronto

TORONTO, September 17, 1910.

The launching of new undertakings and the extending of old ones do not sustain so large a part of the Canadian demand for plant and equipment as they did at the beginning of the revival, which may be said to be still in progress. New manufacturing and other enterprises requiring machinery are still being started here and there, but the principal basis of the market for equipment is the demand on renewal account. By the end of last year the great absorption of construction contractors' outfit, of mining plant, of power works equipment, of factory machinery, &c., began to show less activity. The numerous new ventures for which these were required, having been put on a footing for opera-

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tion, the demand for machinery became somewhat less vigorous.

The Hydroelectric Commission for Ontario has a great part of its transmission line in the southern portion of the province well on the way to completion. This week it began to deliver power to the town of Berlin from the generators of the Ontario Power Company at Niagara Falls. Of the 17 municipalities that have entered into contracts to take power from the commission and of the 16 others that have passed by-laws authorizing such contracts to be entered into, several have yet to build their local distribution plants, and in the course of the next year or two there should be a considerable demand for equipment on their account.

Notice has just been given that the City Council of Winnipeg will install a high pressure water system, the engines, pipes, hydrants, &c., for which are to cost $230,858.

The City Council of Fort William has passed a by-law to raise $100,000 to be expended in street railway construction.

The formation of the Dominion Dry Dock Company was completed at Montreal September 15. It is made up largely of parties representing the Canadian Pacific Railway and Allan Line interests. It is to build drydocks at various points in Canada. Sir Robert Perks, who is prominently connected with the company, says that the works at Levis will be the first constructed.

The F. H. McGuigan Construction Company of Toronto has obtained the contract for building a high level bridge in this city at a cost of $193,000.

A gas plant is being erected at Prince Rupert, the Pacific terminus of the National Transcontinental Railway, at a cost of between $200,000 and $300,000. Interests represented by Raymond Brutinel of Edmonton, are constructing the works.

The City Council of Medicine Hat has arranged to submit to the ratepayers a by-law containing an agreement between the city and the Alberta Rolling Mills Company.

The Hudson's Bay Company will, it is stated, build a department store in Winnipeg to cost $2,000,000.

The Port Arthur City Council has given an extension of time to the Port Arthur wagon works. Construction is to be commenced within 30 days, and operation by the first of September next. The company has now a strong board of directors, and will go into the wagon making business on a large scale. The rate payers of Port Arthur also voted approval the other day of an arrangement for the granting by the city of a site for the works of the Enamel Company, in which not less than 200 men are to be employed. Up-to-date machinery is to be installed.

The directors of the Lake Superior Corporation, Sault Ste. Marie, have decided upon an expenditure of $12,000,000 in the course of the next year or two upon the steel plant, the railroad and the mines in the corporation's system.

Certain parties are in negotiation with the Collingwood Board of Trade for the establishment of rolling mills. It is proposed to lease the lands formerly held by the Cramp Steel Company and other concerns, to obtain a bonus of $50,000 from the town, and to have the assessment on the rolling mills fixed at $100,000.

Works for the manufacture of salt on a very large scale are about to be established in Sarnia by J. I. Carter of that town.

Clare Bros. & Co., one of the large manufacturers of stoves and furnaces in Canada, will build a big addition to the plant at Preston, Ontario.

The international Tool Steel Company is negotiating for the establishment of works in Port Hope, Ontario. Fifty men are to be employed.

At Sulphide, in Hastings County, Ontario, the Nicholls Company is doubling the capacity of its sulphuric acid works.

S. McLaughlin, president of the McLaughlin Carriage & Automobile Company of Oshawa, Ont., speaking at a banquet given in Winnipeg this week, stated that his company employs 700 men, and has lately increased the number. Three large additions are being made to the factory.

The Customs Department of Canada has just issued a stringent regulation in respect to Canadian-owned automobiles re-entering Canada from Detroit. The department is advised that many of these machines have been repaired and certain of their apparatus replaced in Detroit shops without any report being made to the customs collector, who should receive duty on the new equipment. Henceforth car owners will have to present a complete record of their machines, itemizing every section of the car. This record will have to be exhibited to the inspectors and left with them when the car crosses to Detroit. When it returns the customs inspector will be enabled by the record to detect any changes that have been made in the machine.

The Eureka Smoke Consumer Company of Rochester, N. Y., will establish a branch factory at Hamilton, Ont., to care for its Canadian trade. The cost of the new plant will be about $25,000.

The Canadian Westinghouse Company is preparing plans for a number of extensive buildings which will be added to its manufacturing plant at Hamilton, Ont., the estimated cost of which is about $100,000.

The Chemical Laboratories Company, Ltd., of Toronto, will erect an extensive plant at Welland, Ont., on a site of 32 acres recently secured.

The Lundy Shovel & Tool Company, Toronto, has been granted a charter with a capital stock of $200,000, and will engage in the manufacture of shovels and special tools. The directors are Douglas Lundy, Ernest Jackson and James D. Lundy.

The Hamilton Bridge Works Company, Hamilton, Ont., has purchased a site for a new plant in the manufacturers' annex district, Hamilton, Ont. On this site a small initial plant will be built at once for the storage and handling of general structural work and supplies, including a traveling crane extending the length of the property. The expectation of the company is that large extensions will be required in the near future.

The McKinnon Dash Company, St. Catherines, Ont., manufacturer of carriage and saddlery hardware, is completing extensive additions to the malleable iron departments of its plant.

The South

BIRMINGHAM, ALA., September 19, 1910.

With the commencement of fall activity has come the publication or private announcement of plans for important new industrial enterprises, factory, shop or foundry enlargements, &c., than the trade has known since hot weather set in, and a good deal of estimating on the requirements of prospective customers is now being done. Jobbers who cover large sections of the South and dealers in the principal buying centers have again begun to follow up business closely, while local manufacturers and representatives of Northern houses are also making a thorough canvass of their respective fields. This autumn finds all concerned in a better position to take hold vigorously than they were at the same time last year, not being handicapped by the relative unpreparedness that then existed or the necessity of hedging on promises of deliveries which developed before the season's business had fairly started. In contrast to that period conditions now are favorable for a sustained selling campaign.

Automatic stokers for the furnaces under Babcock & Wilcox boilers in one of its generating plants were recently ordered from the Underfeed Stoker Company of America, Chicago, by the Georgia Railway & Electric Company, Atlanta, Ga.

A new plant is expected to be built this fall in the vicinity of Birmingham or Corey by the Senn Pressed Steel Hoe & Tool Company, which has been organized at Birmingham, Ala., by J. R. Peebles, A. C. Bruce and Edw. Senn, the last named being a Northern capitalist.

The Birmingham Machine & Foundry Company, Birmingham, Ala., which has a large quantity of business booked and in prospect for the coming year, recently secured as manager, H. E. Beyer, Pittsburgh, Pa., who is well known to the trade through his previous connection with the Southwark Foundry & Machine Company and other leading concerns.

The pumping plants and water supply system of Birmingham, Ala., may be taken over and enlarged by a private corporation. Whether or not this is done, however, considerable additional machinery and other equipment will be needed before a great while.

Contracts are now being let for a large cement plant to be erected in the vicinity of New Orleans, La., by the Mobile Portland Coal & Cement Company, Mobile, Ala. Work on the buildings will probably begin next month.

The Virginia Bridge & Iron Company, Memphis, Tenn., has been awarded the contract for building the new steel frame saw mill of Lee Wilson & Co. of that city, which will be located at an Arkansas point.

The Ayer & Lord Tie Company, whose main office is in the North, will install equipment at Paducah, Ky., for repairing the steamers and barges used in its business. Dry docks are also to be constructed for the purpose.

The firm of Ewing & Hooper has been organized at Nashville, Tenn., and secured a factory building for the production of trunks at 121 Second avenue.

Plans are reported to have been completed by the Acme Box Company, Chattanooga, Tenn., for the erection of a large box factory, and work is to be started this month.

It is announced by the authorities at Troy, Ala., that the city will purchase two tubular boilers of 150 hp. each, and engine-driven generating units for 250 to 300 kw. for alternating current, three phase, 60 cycles, 2300 volts, together with a switchboard and auxiliary equipment.

The contract for a steel standpipe to be built in connec-

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tion with the new municipal water works system at Opelika, Ala., has been awarded the Chattanooga Boiler & Tank Company, Chattanooga, Tenn.

A wagon factory is to be built at Demopolis, Ala., by the Mitchell-Kervin Company.

Machinery for a pumping plant will be purchased in the near future at Ft. Myers, Fla., an appropriation for the purpose having recently been made.

The J. M. Robinson-Norton Company, Louisville, Ky., is arranging for the construction of a new power house.

The project of installing pumping machinery at Timmonsville, S. C., has been favorably acted upon by the voters, and plans for a complete water works system will be ready in the near future.

A new three-story factory building, 100 x 100 ft., and one-story power plant, 25 x 80 ft., equipped with modern machinery, will be erected late this fall or early in the winter at New Orleans, La., by the American Chicle Company. It is to be of brick and steel construction.

The Elmer Iron Works, New Orleans, La., has been incorporated with $40,000 capital stock. The company will manufacture iron and brass work and general machinery. The incorporators are Charles Elmer, C. C. Elmer, J. A. Elmer, F. W. Elmer and J. P. Droube.

The Mobile Portland Cement & Coal Company, Mobile, Ala., will commence work early in October on the construction of a cement plant of 3000 barrels capacity at St. Stephens, Ala., where it owns large cement deposits and coal fields. The company is also developing 10,000 acres of coal land on the Warrior River.

Wadill Catchings, receiver of the Central Foundry Company, Anniston, Ala., advises that a definite decision has not been reached regarding erection of proposed addition to the plant.

The Northwest

ST. PAUL, MINN., September 19, 1910.

Announcements made thus far this month of factories and other industrial plants to be newly erected, extended or improved have kept the salesmen of machinery houses in this territory busy on estimates, with some good orders already booked. Plans held in abeyance during the summer are now maturing, and by the middle of the coming month, if not before, the purchase of a large quantity of equipment for a great variety of purposes, including the generation, distribution and application of power, will be inevitable. Nearly all public utility corporations that have not recently provided for the enlargement or modernizing of their plants are considering ways and means of doing so. For the account of municipal improvements bond issues continue to be made, and the best engineering firms of this section have in hand numerous plans for electric power stations, pumping plants, &c., to be erected during the fall or early next spring.

A great deal of electric motor driven machinery for hoisting, pumping and other service will be required within the coming year by the Anaconda Copper Mining Company for its various properties in the vicinity of Anaconda, Mont. A beginning has already been made in the installation of the new system and it will be gradually extended as the necessary facilities can be provided, current being obtained from the hydroelectric plant of the Missouri River Power Company, Great Falls, Mont.

Plans are reported to be under way at Willow Lake, S. D., for the installation of a municipal water works system.

The Crookston Gas Company, Crookston, Minn., has let contracts for the erection and equipment of a new plant.

The Dakota Metal Granary Company, Mitchell, S. D., has been incorporated with $250,000 capital stock, to manufacture metal grain bins. Work will be commenced at once on the erection of a factory to be completed by the first of the year. The officers of the company are I. O. Brock, president; Alexander McQuarters, vice-president; H. R. Beyer, treasurer; N. A. Wing, secretary.

The Homestake Mining Company, Lead, S. D., has awarded a contract to the Westinghouse Electrical & Mfg. Company of Pittsburgh, Pa., for the equipment to be installed in its new power house being constructed in Spearfish canyon. The power house and its accompanying tunnel work will give the company 4500 hp. for use in its mines and mills and is being constructed at a cost of over $1,000,000.

The Fall Lake Company, Duluth, Minn., has been incorporated with $10,000 capital stock for the purpose of mining, smelting, reducing and refining ores and other minerals and the manufacture of iron, steel, copper and other metals. The incorporators are W. D. Bailey, A. G. Gillette and C. M. Van Norman, all of Duluth.

Clinton Morrison, Guaranty Building, Minneapolis, has had plans drawn and the construction contract awarded for a four-story building, 40 x 100 ft., to be leased for light manufacturing.

Equipment for a cooperage plant will be required in the near future by the North Star Barrel Company, Minneapolis, Minn., whose factory recently burned.

The project of installing pumping machinery for municipal service at Chisholm, Minn., is now being actively taken up by the authorities.

A steel tower and tank of 150,000 gal. capacity may be contracted for this fall by the city of Worthington, Minn.

Plans will probably be drawn in the near future for a new three-story factory building to be erected by the Minneapolis Furniture Frame Company, Minneapolis. Electrical operation of machinery by means of motor drive is contemplated.

The demand from Northwestern points for the automobile manufactured by the Motor Buggy Company, Minneapolis, has been so extensive that some additions will probably be made before spring to the manufacturing facilities of the company, whose plant is located on Columbia Heights.

The contract for a new steel structure spanning the Cannon River at Randolph, Minn., has been let to the Hennepin Bridge Company, Minneapolis.

A manufacturing plant consisting of five large buildings is to be erected at Owatonna, Minn., under the auspices of the Business Men's Association, and leased to builders of machinery. Negotiations with a company producing traction engines for heavy service are reported to be now in progress.

The proposed municipal power and pumping station at Hecla, S. D., will not be built this year. Adverse action on the project has been taken by the voters.

The Southwest

KANSAS CITY, MO., September 19, 1910.

A marked improvement in trade conditions is now beginning to be felt in Kansas, Arkansas and Texas, with a further increase of activity in Oklahoma and very encouraging progress all through the mining and irrigated sections of the far Southwest. Selling agencies located in El Paso, as well as the local machine shops and foundries, are also doing a fairly good business with companies operating in Mexico, particularly those in which American capital has been invested. With all this, however, the market has not yet reached the level that was anticipated for the beginning of the fall term; and while it looks now as though there could be nothing further to hinder a general resumption of buying, the gain will probably come gradually rather than by any sudden spurt.

The authorities at Kansas City, Kan., are considering plans for a municipal station to generate electric power, not only for city lighting, pumping and other service, but also to furnish current to industrial plants. The project has not yet, however, passed beyond its preliminary stages.

An automatic high-speed engine and single phase alternating current generator of 35 kw. will be purchased shortly for a lighting plant at Talihina, Okla.

Two new tubular boilers, increasing the capacity of the plant 1000 hp., will be installed by the Topeka Edison Light, Heat & Power Company, Topeka, Kan., either this fall or early in the coming winter.

A new tubular boiler is being installed in the power house of the Green Dog Mining Company, Joplin, Mo., and a number of improvements, which will be followed by others later on, are being made in the operating department in order to provide for a larger output of ore.

Plans for a new and thoroughly modern system of water works, including pumping machinery of demonstrated economy, have been outlined at Conway, Ark., and the matter will be definitely acted upon in the near future.

The Bartlesville Interurban Railway, Bartlesville, Okla., is completing an electric power house equipped with Babcock & Wilcox boilers and Allis-Chalmers generating unit, the prime mover of which is a cross compound condensing engine. It is probable, however, that the requirements of the service will necessitate adding to this plant by next spring.

The Omaha-Petersburg Company, Galena, Kan., is well along with the building of a new 1000-ton ore reduction plant, and the machinery will be installed this fall. Most of the equipment required has already been provided for, but more will need to be purchased later on.

An additional plant is to be built at Benton, Ark., by the Greenville Stave Company, Little Rock, Ark.

A bond issue has been voted by Caney, Kan., in support of the Cherryvale, Oklahoma & Texas Railroad for a line southwest through Oklahoma, on condition that the shops of the road are to be located at that place.

A new two-story factory building is to be erected in

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Kansas City by the Kansas City Vehicle & Automobile Company.

It is reported from Warren, Ark., that the flywheel on the 1200-hp. engine in the plant of the Arkansas Lubricating Company, which supplies electric lighting for the town as well as power for its own plant, recently burst, necessitating the renewal of some of the machinery.

The plant of the Sapulpa Electric Company, Sapulpa, Okla., which is equipped with three alternating current generators of 450 kw., driven by Bessemer and Allis-Chalmers gas engines, will probably be enlarged and greatly improved, being now under the management of H. M. Byllesby & Co., Chicago.

The Guthrie Mfg. Company has been organized at Guthrie, Okla., by Wm. H. Bruner and others to establish a plant for machinery building and repair work.

A new hydroelectric power plant is being completed by the Helen Mining Company, Mogollon, N. M., which will henceforth be in the market for motors and other machinery additional to that now in service, as the output of the property is increasing.

The Haynes Copper Company, Jerome, Ariz., is putting in electrical machinery for operating its mines, including a large motor-driven pump, and as soon as this can be placed in service extensive development work will be entered upon, leading to the purchase of still further equipment by spring.

The Board of Trade of Texarkana, Texas, has closed a contract with the Texarkana Seating Company for the construction of a factory to cost $200,000, for the manufacture of school desks, opera chairs and other public building furniture. The company will commence at once the erection of a modern factory and foundry, plans and specifications for which have been prepared. The company has established temporary headquarters in the Huckins House.

R. M. Patterson, Independence, Kan., has closed a contract with the Board of Trade of Texarkana, Texas, for the erection of a glass manufacturing plant to be erected at a cost of $75,000. Work upon the construction of the plant will be commenced in the near future and it is expected that the plant will be completed and ready for operation by December 1.

The United Well Works, Stuttgart, Ark., has been incorporated with $50,000 capital stock. The company has purchased the shop and buildings of the Stuttgart Machine Works, which it will combine with the J. L. Tindall Machine Company and the firm of Sickel & Pennington. The company will manufacture screen, centrifugal irrigation pumps, and will handle all irrigation machinery and install complete irrigation outfits, including the drilling of wells and setting the engines. It will also handle steam engines and boilers, gasoline engines, gas producer plant, automobiles and all varieties of rice machinery. New machinery to be purchased and for which the company is now in the market includes one bending roll, capacity ¼-in. steel plates 16 in. wide, a power punch to punch ¼-in. holes in this plate, pipe machines for cutting and threading pipe in sizes from 3 to 16 in., and a cold cut-off saw, all machines to be direct connected with 220 D. C. belt motors. The officers of the company are Ray O. Burks, president; J. L. Tindall, vice-president; H. B. Allen Sickel, secretary; J. I. Porter, treasurer, all well-known business men of Stuttgart.

George C. Christopher & Son, Wichita, Kan., are erecting an addition to their plant 100 x 120 ft., two stories, to be used for the manufacture of concrete stone machines and mixtures and for structural steel shops. It is expected that the new building will be completed in about 60 days.

The contract for the two air compressors required in the city water works service at Dallas, Texas, mentioned some time ago, has been let to the Ingersoll-Rand Company, New York City.

The Farther Central West

OMAHA, NEB., September 19, 1910.

Purchasing by large interests, especially of power machinery, has lately been the most pronounced feature of the market, but these orders are being placed mainly with the representatives of Eastern manufacturers, so that local dealers find little to interest them except in the sale of auxiliary machinery and appliances, including piping, valves, controllers, separators, &c. Among the products of the shops of this section, hoists, compressors, crushing, grinding and mining or ore reduction machinery are selling to the best advantage, owing to the demand from the mountain districts. A steady volume of output is, however, also being maintained by the manufacturers of concrete and other construction machinery, agricultural implements, field, road or ditching tractors, farm engines, boilers, tanks, reservoirs, &c., so that the aggregate volume of production remains heavy and the general industrial condition is strong.

The Ottumwa Iron Works, Ottumwa, Iowa, is building an electric hoist, equipped with an alternating current motor of 100 hp., for the Hercules Mining Company, Burke, Idaho. This is designed to replace a pneumatic hoist now in service and will operate to a depth of 1000 ft.

A very light gasoline engine of 1 hp., which is intended especially for domestic service, is being manufactured by the Wilson Machine Company, Des Moines, Iowa. In all essential details this engine is as well built as motors of high power, and the company has established a large trade in the machines.

The Ritchie Corrugated Culvert Company is starting work on the erection of its new plant at Muscatine, Iowa.

The Waterloo Gasoline Engine Company, Waterloo, Iowa, which has been established for nearly 18 years and has a present capacity of 15,000 machines yearly, is making extensive sales this season of its engine known as the Waterloo Boy. This possesses features covered by exclusive patents which render it particularly desirable for certain classes of service.

Some improvements are to be made in the equipment of the municipal water works station at La Motte, Iowa.

The Geo. P. Smith Company, Charles City, Iowa, is adding to its working force and will probably be obliged to enlarge the facilities of the woodworking plant which it operates.

An addition is to be made this fall to the factory of the Guttenberg Pearl Button Company, Guttenberg, Iowa.

New generating units, with auxiliary apparatus, will be required in the spring by the Pueblo & Suburban Traction & Lighting Company, Pueblo, Colo. The boiler plant is now being added to and improved.

The Denver Engineering Works Company, Denver, Colo., will furnish a new ore crushing plant, including 20 stamps of 1250 lbs. each, for the Rincon Mining Company, Temascaltepec, Hidalgo, Mexico.

K. Seemann, Georgetown, Colo., is providing electric motors for use in the mine of which he is manager; and further improvements, including the use of machine drills and enlarging the capacity of the ore reduction mill, will be undertaken shortly.

Funds for the construction of a water works system will be available in the near future at Boulder, Colo.

The Monticello Electric Company, Monticello, Iowa, which recently purchased 15 acres of land on the Maquoketa River for the location of a dam and power house, advises that the work of construction will not commence until next year.

The American Safe & Vault Company, recently organized with a Colorado charter and an authorized capital stock of $500,000, is looking for a site in Denver for the erection of a plant to manufacture a new type of burglar and fire proof safe. Richard D. Ewing, Denver, Colo., who is secretary of the Colorado Irrigation Construction Company, is president.

The Des Moines Bridge & Iron Company, Des Moines, Iowa, has secured the following contracts for structural steel: Des Moines East High School Building, 260 tons; Dakota Portland Cement Company, Chamberlain, S. D., 600 tons; 300,000-gal. steel water tank and tower for the War Department, United States Army, Ft. Missoula, Mont.

San Francisco

SAN FRANCISCO, September 14, 1910.

Negotiations are now in progress which afford some hope of relief from the oppressive labor conditions which have recently existed in San Francisco foundry and machine shops. It is admitted that the strikes at other Coast cities have failed, and a committee of arbitration is now discussing the matters at issue locally, both employers and workmen having agreed to abide by its decision. The committee consists mainly of prominent men who are not directly interested in the iron and machinery trade, and a decision is expected which will enable the local shops to hold their own in the Coast market.

Since the first of the month the machinery market has been interrupted by two holidays and a week of festivities in San Francisco, and conditions are not yet quite normal, though a fair volume of business has come out in the last few days. Nothing has been done on a few inquiries for large metal working tools, and altogether the market remains extremely slow, though a fair volume of business, consisting mostly of single tools, has been booked for shipment to the interior. Several shops at outside towns are preparing for an active fall season and are likely to put in considerable new equipment within the next two months. Local plants are buying on a very small scale, but if the labor trouble is satisfactorily disposed of there should be an active movement between now and the end of the year.

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Many of the local machinery dealers took an active interest in the annual convention of the lumbermen's order of Hoo Hoo, which met here September 8-10. Pacific Coast lumbermen are now discussing the outlook for 1911, and in view of the material improvement in conditions during the last few months a period of great activity is expected. Logging and woodworking machinery has been in fair demand of late, but from now on some curtailment is expected, as operations in many districts are suspended during the winter. The local planing mills have purchased very sparingly, but wood finishing equipment finds an active market in the interior.

There has not yet been any decrease in the demand for road machinery, though no important business in crushers or concrete equipment has come out since the first of the month. The past year has been an extremely good one in steam shovels and large dredging machinery of various kinds, and there are still a few inquiries for such equipment, though few additional sales are expected this year. Eastern manufacturers have sold several large dredging plants for Alaska and the export trade through their San Francisco offices, one Bucyrus outfit having gone to South America and one to Burmah, India. New railroad construction in the coast distric will probably require a number of steam shovels during the coming year.

Electric and hydro-electric machinery is fairly active at present, several large installations being in progress in various parts of California, as well as in the North. One of the largest plants is being installed by the General Electric Company for the Pacific Light & Power Company at Los Angeles, and includes several Curtis steam turbines and generators.

The Bucyrus Company anticipates a large business through its San Francisco office in the Heyworth-Newman drag-line excavator, for which it secured manufacturing and selling rights some time ago, as this machine promises to give excellent service in the construction of irrigation ditches and for double tracking. This office has taken a number of orders for ballast plows recently.

The American Steel & Wire Company is taking figures on an addition to its warehouse and offices at Folsom and Sixteenth streets, San Francisco.

The Wagner Azurite Copper Company, Tonopah, Nev., is planning to install a new boiler and air compressor.

The Phillipps Construction Company will shortly install a crushing plant near Corona, Cal., with a capacity of about 500 tons daily.

The San Dimas rock quarry, recently installed in Los Angeles County by Henshaw, Bulkley & Co., San Francisco machinery merchants, is now in operation with a daily output of 2000 tons. Both Santa Fé and Pacific Electric railroads are constructing branch lines over 20 miles long to this quarry.

The Best Mfg. Company of San Leandro, Cal., is meeting with great success in the manufacture of gasoline traction engines and harvesting machinery. Plans are being completed for increasing the output, and orders have been placed within the last few weeks for another large lot of Buffalo gasoline engines.

California hydro-electric power companies are extending their distribution lines into the oil fields, and motors have been installed for pumping at a number of wells. An active demand for motors for this purpose is expected during the next year.

The over-production of oil in California has resulted in a sharp decline in prices, accompanied by an extension of the market for fuel oil and a strong demand for oil-burning equipment. The oil producing interests are beginning to recover from the recent depression, and are coming into the market to some extent for machinery for drilling operations, as well as for handling the present output.

The Standard Oil Company is preparing to increase the capacity of its water pumping plant near Richmond, Cal.

Chas. C. Moore & Co. have taken a contract for installing an electric power plant, including boilers, engines and generators, for the Government on Alcatraz Island. This company will also furnish a boiler for the Pasadena, Cal., electric light works.

The machine shop of G. G. Bennett, Lancaster, Cal., was destroyed by fire recently.

The town of Santa Ana, Cal., has purchased a Monarch steam roller.

It is reported that construction will be started shortly on the machine shops and roundhouse at Roseville, Cal., for which plans were made some time ago by the Southern Pacific Railroad.

The Beltson Copper Company is installing a hydroelectric plant on Latouche Island, Alaska, for which Pelton turbines and Westinghouse generators have been ordered.

The Nevada Wonder Mining Company, Wonder, Nev., has given a contract to the Mill & Smelter Engineering Company of New York for the installation of a 100-ton mill and a water system.

The Butte Engineering & Electric Company, 683-687 Howard street, San Francisco, is making a specialty of electric traveling cranes, a number of which have recently been installed in local steel warehouses, foundries and machine shops.

The San Diego Electric Railway Company, San Diego, Cal., is preparing to erect a power station and machine shops at San Diego, which will call for expenditures aggregating $265,000. According to A. Ervast, chief engineer in charge of the construction, it will take several years to complete the project. The machine shop will be 125 x 200 ft., and its construction will be commenced very shortly. The building will be equipped with a general line of car building and repairing apparatus and when completed the machinery now in use in an existing car plant will be installed in the structure, together with new equipment. The power plant will be built in sections, and the first building, 75 x 160 ft., will be erected so that additional power equipment can be installed and put into use as soon as possible. The entire power plant will, when completed, be 200 x 300 ft. in size and machinery capable of developing 35,000 kw. will be installed.

North Pacific Coast

PORTLAND, ORE., September 16, 1910.

The demand for power machinery, including boilers, heaters, pumps, engines, steam turbines, condensers, hydraulic turbines, generators, exciter units, transformers, motors, switchboards and detail apparatus of various kinds, has again become the most prominent feature of the market. The electrification of industrial plants on the north coast has progressed so far that new construction of almost any kind means the purchase of some of this equipment, and nearly all improvements effected in the older manufacturing establishments include a remodeling to the new system; hence the dominating influence which it exerts. Accompanying this, however, is also a widening market for the operating machinery used in foundries, shops, factories and mills, including both metal and woodworking tools. Sales of such have thus far not been heavy; but the volume of the trade is expanding, and most salesmen feel that they are doing a fair business for the season.

A new plant is being put in operation at Montesano by the Onn Lumber & Shingle Company, Tacoma, Wash., and plans for rebuilding the mill at Tacoma which burned not long ago are under consideration. Both will be among the most modernly equipped of any on the Coast.

The Pacific Exploration Company, headed by N. G. Hall, Nelson, British Columbia, in which American capital is principally interested, has been organized to build a power plant of 20,000 kw. capacity on the Pend d'Oreille River near Waneta, Wash., to supply electric current to mines and smelters in the vicinity.

Machinery for the manufacture of wood pipe is to be installed by the Byrne-Turner Lumber Company, Bellingham, Wash.

The foundry and machine shop of the J. P. Symons Company, Centralia, Wash., have had a busy year thus far in the manufacture of machinery for mining and saw mill service. Repair work is also a substantial feature of the business, and there promises to be a good deal of it offering this fall.

With the encouragement of the Seattle Chamber of Commerce, in whose care he may be addressed, Chas. B. Pride, formerly of Tomahawk, Wis., is planning to build a large paper mill on the Coast. The project has not yet advanced to the stage where machinery requirements can be determined upon.

The A. H. Averill Machinery Company, Portland, Ore., is handling the boilers and engines built by the Russell Engine Works, Massillon, Ohio, of which numerous installations have been made in this part of the country. A very complete line of the machines is carried in stock.

Some additional pumping machinery will probably be required by or before winter at Spokane, Wash., for municipal water service, in accordance with the recommendation of the officials in charge.

The plant of the Acme Mfg. Company, Tacoma, Wash., which was destroyed by fire about three weeks since, is to be rebuilt and extended. Electric motor drive will probably be used throughout.

The construction of a substation for the electric power system of the municipality, at a cost estimated to exceed $100,000, has been decided upon at Tacoma, Wash.

Iron and Industrial Stocks

NEW YORK, September 21, 1910.

Transactions in stocks continue light. The market has almost been stagnant on some days and fluctuations have not been important. The stock market appears to be marking time like the iron trade. The range of prices on active iron and industrial stocks from Wednesday of last week to Tuesday of this week was as follows:

Allis-Chalmers, com..	8¼	8½	Nat. En. & St.,com.	14	15
Allis-Chalmers, pref.....	30		Pressed St., com...	34	34⅝
Beth. Steel, com....	26	28⅝	Pressed St., pref..	93½	94½
Beth. Steel, pref...	56	59⅝	Railway Spr., com.	30¾	31⅜
Can. com.....	7⅞	8⅛	Republic, com.....	30	30¾
Can. pref.....	66	69	Republic, pref.....	91¼	94½
Car & Fdry., com..	46	48⅜	Sloss, com.....	54	57
Car & Fdry., pref..	110¾	113¼	Pipe, com.....	15	16
Steel Foundries...	43½	44	U. S. Steel, com...	69½	70¼
Colorado Fuel.....	29¾	30½	U. S. Steel, pref...	115½	116⅞
General Electric...	142½	144½	Westinghouse Elec.	59	61
Gr. N. ore cert....	54¼	57	Am. Ship, com....	74	76
Int. Harv., com...	97	98⅝	Chi. Pneu. Tool...	35	35½
Int. Harv., pref.....	120		Cambria Steel.....	41¼	43¼
Int. Pump, com...	39	40½	Lake Sup. Corp....	22	23
Int. Pump, pref...	82⅞	83⅝	Warwick	10	10⅝
Locomotive, com..	36	37¼	Crucible St., com..	118⅝	124⅝
Locomotive, pref..	104½	106	Crucible St., pref..	73¼	77⅝

A special meeting of the Ingersoll-Rand Company has been called for October 4, to consider resolutions adopted by the directors proposing to retire the outstanding preferred stock and redeem it with common stock on a share for share basis; also to sell, for not less than par, 3452 shares of the common stock shares received in exchange for the preferred stock, to employees, other than directors, and at such times as the directors may determine. The company has outstanding $4,800,000 preferred stock and $3,000,000 common stock. Since organization, semiannual dividends of 3 per cent. have been paid on the preferred stock. A first dividend of 5 per cent. was paid on the common stock in April last. It is proposed that it remain optional with the preferred stockholders to surrender their certificates in exchange for common stock, and that they may determine for themselves what exchange, if any, they desire to make.

Dividends.—The Boston Belting Company has declared the regular quarterly dividend of $2 per share, payable October 1.

The Otis Elevator Company has declared the regular quarterly dividend of 1½ per cent. on the preferred stock, payable October 15.

The Washburn Wire Company has declared the regular quarterly dividend of 1¾ per cent. on its preferred stock, payable October 1.

Manning, Maxwell & Moore, Inc., have declared the regular quarterly dividend of 1½ per cent., payable September 30.

The Westinghouse Air Brake Company has declared the regular quarterly dividend of 2½ per cent., an extra dividend of 1½ per cent. and a special dividend of 1 per cent., payable October 2. The previous quarter the company declared a special dividend of 2 per cent.

The Walpole Rubber Company, Boston, has declared the regular quarterly 1 per cent. on its common stock and 1¾ per cent. on its preferred stock, both payable October 15.

The Crucible Steel Company of America has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable September 30.

The E. W. Bliss Company has declared the regular quarterly dividends of 2 per cent. on the preferred and 2½ per cent. on the common stock, payable October 1.

The American Brake Shoe & Foundry Company has declared the regular quarterly dividends of 1¾ per cent. on the preferred and 1¾ per cent. on the common stock, payable October 11.

Population of Chicago and Other Lake Cities.—The population of Chicago as announced by the Census Bureau is 2,185,283, an increase since 1900 of 486,708, or 28.7 per cent. The Chicago claim has been 2,400,000. The rate of increase in the decade 1890-1900 was 34.4 per cent. A bulletin of the Census Bureau shows that the average increase in the past decade of 29 cities with a population over 100,000 was 31. Chicago's gain is thus 2.3 per cent. below this average. Chicago's gain in the last decade of the nineteenth century was greater than that of any other lake city, Cleveland showing 46 per cent. gain, Buffalo 37, Detroit 38 and Milwaukee 39. In the past decade all these cities but Buffalo had a greater percent of gain than Chicago, the figures being: Cleveland, 46.9; Buffalo, 20.2; Detroit, 63; Milwaukee, 31.

The Spelter Syndicate.—At a meeting held at Cologne, Germany, September 5, spelter manufacturers are reported to have reached an understanding on the main points relating to output, and therefore the publication of a notice of dissolution of the present spelter syndicate has been postponed from October 1 to November 15. The prospects of a successful outcome of negotiations for renewing the syndicate are considered improved. Five years is the period talked of for the new agreement, though in some quarters a three years' arrangement is preferred in view of the possibility of the erection of new works meantime. The difficulties in securing another agreement are due chiefly to the differing interest of unmixed and mine owning works.

The Hunter Saw & Machine Company, Fifty-seventh and Butler streets, Pittsburgh, will shortly commence erecting an addition to its plant, to be built of brick and steel, two stories, and to serve as an addition to its grinding department. The equipment needed will be manufactured in the company's own machine shop. Its general business is good, while its export trade on grinding machines to Germany, Spain and the Panama Canal is satisfactory. Its products are circular saws for cutting hot and cold metals and saw grinding machinery.

The Bessemer Gas Engine Company, Grove City, Pa., is building a 260-ft. addition to its foundry, in which a 20-ton Whiting cupola will be installed, which will about double the present melting capacity and will enable the company to make all its own castings. It has recently made sales of 20 gas engines for mining installations in the vicinity of Joplin, Mo., with an aggregate of 1735 hp., making over 700 Bessemer engines sold in that district, in addition to numerous sales of 35 to 70 hp. engines in other localities.

The Duquesne Steel Foundry Company, Arrott Building, Pittsburgh, Pa., works at Coraopolis, Pa., has added five annealing furnaces and three Whiting cranes to its plant, which will largely increase its capacity for the manufacture of rolling mill and steel works machinery of all kinds, including rolls. It recently shipped two steel castings, weighing about 65,000 lb. each, to the Cambria Steel Company, Johnstown, Pa., to be used for roll housings in a new mill now being built.

The S. Keighley Metal Ceiling & Mfg. Company, Locust street, Pittsburgh, with plant at Follansbee, W. Va., has been awarded a contract for 1200 Phœnix metal lockers by a Cleveland high school. Its business on Keighley lock joint, dust proof metal ceilings is fair, but the aggregate of orders booked will enable the plant to be operated to nearly full capacity for some time.

The Riter-Conley Mfg. Company, Pittsburgh, has been awarded a Government contract for about a mile of 26 and 36 in. riveted steel pipe for use in irrigation work in the Uncompahgre Valley, Colo. Contracts in hand for plate work, structural buildings, tanks, &c., will keep its two plants—Leetsdale, Pa., and the North Side, Pittsburgh—operating to about full capacity.

The United States Cast Iron Pipe & Foundry Company has recently completed improvements at its Superior, Wis., plant which have increased its capacity about 30 per cent. This foundry now has a capacity of 1250 tons of pipe a month.

The Hicks Locomotive & Car Works, Chicago Heights, Ill., has gone into receivers' hands. The Continental & Commercial Trust & Savings Bank, Chicago, was appointed receiver by the United States Circuit Court September 19.

S. DIESCHER & SONS.
Mechanical and Civil Engineers,
PITTSBURGH, PA.

Obituary

COL. ALEXANDER GORDON, chairman of the Board of Directors of the Niles-Bement-Pond Company and for a number of years prominent in the machine tool trade as president of the Niles Tool Works Company, Hamilton, Ohio, died September 11 at London, England. He had been abroad for nearly a year for the benefit of his health. He was born in Belfast, Ireland, December 16, 1839, and was trained at Marshall College, Aberdeen. He and his brother, Frederick, operated a machine shop at Ironton, Ohio, in the early eighteen sixties. Going to Cincinnati, Alexander Gordon became associated with G. A. Gray, another machinist, and they interested James W. Gaff, a well-known Cincinnati merchant, in a plan to take over the machine shop which had been operated there by John S. Niles, whose name was perpetuated in the well-known Hamilton works. The firm of Gaff, Gray & Gordon was formed and for four years carried on the manufacture of machine tools in the original Niles

ALEXANDER GORDON.

shop which in 1871 made way for the Pennsylvania Railroad depot at Cincinnati. Hamilton, Ohio, offered 15 acres of land to move the plant to that city and in 1872 the firm took possession there of a modern shop with a capacity of $300,000 worth of product a year. Mr. Gray retired in 1877 and later Col. R. C. McKinney, now president of the Niles-Bement-Pond Company, came into the Hamilton concern as secretary. Under the presidency of Colonel Gordon the business of the Niles Tool Works Company was greatly extended, particularly in the line of railroad shop tools.

FREDERICK MERIAN WHEELER, a resident of Montclair, N. J., died September 15 at his summer home, Westhampton, L. I., from heart disease, aged 62 years. He was born in Brooklyn, was graduated at Summit Academy, New Jersey, and attended the Polytechnic Institute at Brooklyn. He studied mechanical engineering and then took up hydraulic and marine engineering, and for more than 34 years was associated with the George F. Blake Mfg. Company. He was a director and secretary of the company and later a director of the International Steam Pump Company. He was the inventor of the Wheeler patent surface condenser, which has been adopted by the United States navy. He was one of the charter members of the American Society of Mechanical Engineers and the Society of Naval Architects and Marine Engineers. He leaves a widow, two sons and two daughters.

JOHN M. HARTMAN, Philadelphia, died September 4, aged 70 years. Born in Chester County, Pa., in 1856, he entered the I. P. Morris Company's shops in Philadelphia, where he learned mechanical engineering. At 25 he formed a partnership with Louis Taws as Taws & Hartman, machinists and brass founders. This partnership continued for 33 years, when Mr. Taws withdrew, and the business has since been conducted under the name of the Hartman Company. Mr. Hartman was an authority on blast furnaces and for many years was actively engaged in building or remodeling furnace plants. He served for three years in the Philadelphia Common Council, where he was noted for his independence in advocating the interests of the city. He was a pioneer in the movement to abate the smoke nuisance and worked hard to obtain laws toward this end. He was a member of the Franklin Institute, the Academy of Natural Sciences and other scientific and engineering organizations and wrote much on technical and historical topics. He leaves a widow and a daughter.

The Crucible Steel Company's Affairs

At a meeting of the Board of Directors of the Crucible Steel Company of America, held September 17, Chairman Du Puy stated that, owing to the fact that the end of the fiscal year, August 31, was so close to the meeting of the board, it was only possible to make a preliminary financial statement. The profits during the past 12 months were $4,140,000, against which the board has set aside $500,000 for depreciation and renewals, and reserved $109,000 for contingencies, leaving a net profit for the year of $3,531,000, or 14.14 per cent. on the company's preferred stock. Had the company at the end of the previous year charged off the same amounts for depreciation and reserve, $609,000, leaving a profit of $1,505,000, it is readily seen that the profits during the past year more than doubled those of the previous year.

The chairman further stated that the orders of the company seem to be keeping up reasonably well, though during the past few days a noticeable falling off has been experienced. It is hoped, however, that as soon as the railroads settle their troubles with the Interstate Commerce Commission, and come into the market to make purchases, the business of the company will become normal. As it is, the books show that the tonnage of orders and contracts is heavier than it has ever been in the history of the company. Many of the departments have more orders than they can take immediate care of, though there are spots where some slackness is felt. Taking it as a whole, the company is doing a reasonably profitable business, and everything concerning it is in a healthy condition.

Railroad Equipment Orders.—The Santa Fé is reported to have ordered 1000 refrigerator cars, the Colorado & Southern 250 dump cars, and the Havana Central 250 freight cars and 140 cabooses, all from the American Car & Foundry Company. The L. & N. is in the market for 100 ballast cars, the Solvay Process Company for 50 gondola cars, the Niles-Bement-Pond Company for 20 gondola cars, and the B. & O. for 75 passenger coaches. A South American road is reported to be inquiring for 50 box cars. Three industrial companies have ordered a total of 15 locomotives, and the Pere Marquette and the Union Railroad 10 locomotives each.

Argentina is suffering seriously from an invasion of grasshoppers, and the Government has authorized the purchase of 65,616,666 ft. of metallic fence for protection. American manufacturers were requested to cable bids on this fence by September 20.

Personal

A. J. MacEwan, formerly with T. H. Lewis & Co., Pittsburgh, is now employed in the sales department of Eaton, Rhodes & Co., dealers in pig iron and steel, Oliver Building, Pittsburgh, Pa.

Dr. G. W. Sargent, formerly with the Carpenter Steel Company, Reading, Pa., has resigned, and is now connected with the Crucible Steel Company of America, Pittsburgh, for the purpose of developing a research department. He has been elected a member of the Board of Directors and fourth vice-president of the latter company.

Harry E. Zaring, formerly private secretary to President C. C. Ramsey, has been appointed assistant secretary of the Crucible Steel Company of America, Pittsburgh.

William Lodge, president of the Lodge & Shipley Machine Tool Company, Cincinnati, Ohio, returned last week from a several months' business and pleasure trip through Europe.

T. I. Crane of Pilling & Crane, Philadelphia, Pa., returned September 16 from a two months' trip in Europe.

Thomas Devlin, president of the Thomas Devlin Mfg. Company, Philadelphia, Pa., returned September 6 from a two months' trip abroad.

C. L. Gulick has resigned as vice-president of the American & British Mfg. Company, Bridgeport, Conn., to accept the position of vice-president and general manager of the Enos Company, New York.

Wiley Alford has been appointed assistant general manager of the Coosa Pipe & Foundry Company and Gadsden Pipe & Fittings Company in charge of their operations at Gadsden, Ala.

T. L. Powell, resident manager for Hickman, Williams & Co., and E. B. Barnes, sales manager of the Republic Iron & Steel Company, have returned to Birmingham, Ala., from a vacation trip of several weeks in Michigan.

H. Lee Morrow, formerly with the local office of Rogers, Brown & Co., has become associated with the firm of the Hammond-Byrd Company at Birmingham, Ala.

Arthur Fritsch has been appointed manager of the Chicago office in the Monadnock Block of the Pawling & Harnischfeger Company, Milwaukee, Wis., builder of electric traveling cranes and hoists, succeeding W. E. Kreamer, resigned. Mr. Fritsch was formerly connected with the engineering and sales department of the Allis-Chalmers Company.

H. K. Behn, manager of the Phoenix Warehouse Company, Phoenix, Ariz., has been visiting the trade in New York arranging to represent manufacturers of heavy hardware and specialties.

Frederick Kuppersbusch, of Kuppersbusch Söhne, Schalke, Germany, manufacturers of stoves, ranges and sanitary equipment, is spending about two months in this country visiting machinery houses and manufacturers.

Hollinshead W. Taylor of the N. & G. Taylor Company, the Philadelphia tin plate house, returned from a foreign trip September 13.

Frank H. Tuthill, president of the Tuthill Spring Company, Chicago, is expected to return October 1 from Europe, where he has been spending the summer.

A. E. Borie has resigned from the New Jersey Zinc Company, New York, to accept a vice presidency of the Taylor Iron & Steel Company, High Bridge, N. J., which has New York offices at 100 Broadway.

Theodore O. Vilter, Vilter Mfg. Company, Milwaukee, president of the American Association of Refrigeration, has sailed for Europe to attend the convention of the International Association of Refrigeration at Vienna. Mr. Vilter and other representatives from this country will invite the association to hold its next convention in the United States.

P. T. Laws has been appointed manager of the Anniston, Ala., plant of the United States Cast Iron Pipe & Foundry Company.

T. Frame Thompson, London, England, chairman of the Board of Directors of the Otis Steel Company, Ltd., Cleveland, Ohio, is now in the United States.

L. V. Woerner, Jr., manager of the Fairbanks Company's supply department, Buffalo, N. Y., has tendered his resignation, effective October 1.

President Schwab and Vice-Presidents Archibald Johnston and H. S. Snyder of the Bethlehem Steel Company are in San Francisco visiting the Union Iron Works, but denial is made of the report that a contract for vessels and armor is about to be closed with Prince Tsai Hsun, Minister of the Chinese Navy, whom the party met at San Francisco and will accompany on his trip across the continent.

John B. Milliken, controller of the Crocker-Wheeler Company, Ampere, N. J., has accepted the position of treasurer of the Yale & Towne Mfg. Company, Stamford, Conn. His headquarters will be in New York.

F. F. Prentiss, formerly president of the Cleveland Twist Drill Company, Cleveland, Ohio, returned September 19 from a tour of the world lasting over a year.

A Yale & Towne Reception

About 30 of the dealers and salesmen in New York and vicinity handling the Yale & Towne Mfg. Company's chain blocks and hoists, at the invitation of that company, visited its factory at Stamford, Conn., September 16, and about an equal number from the same territory will be similarly entertained September 23. Last week's party left the Grand Central Station at 2 p.m. and arriving at Stamford was taken in automobiles to the factory, where it was divided into three sections and under the guidance of R. T. Hodgkins, manager; H. C. Spaulding, district manager, and A. J. Regan, superintendent, respectively, of the hoist department, was shown through the factory, where all of the processes, particularly those entering into the manufacture of the Triplex and Differential chain blocks and electric hoists, were explained.

The inspection completed, the guests were taken to the Stamford Yacht Club, where they enjoyed an elaborate shore dinner. In the speeches which followed, General Manager W. C. Allen and Messrs. Hodgkins, Spaulding and Regan explained something of the purposes of the visit and the organization and advertising campaign which have been instituted to further the sales of hoists and chain blocks. It can hardly be doubted that this method of grounding those who come into direct contact with purchasers, in the reasons for the constructional and operating excellence of the company's product, will be of mutual benefit to the company and its agents, and quite as much will it be an advantage in facilitating the business transactions between them to be better acquainted personally. The whole scheme may well commend itself to other manufacturers of whatever line, providing that the line is one that will warrant it.

Passenger arrivals at New York from Europe have been very heavy this month. Up to September 17, the number of first class passengers arriving in 1910 was 68,230, a gain of 5,953 over 1909 to the same date; second class, 174,885, a gain of 32,449; steerage, 802,670, a gain of 107,839. Of eastbound passengers the number in the same period was 182,927 first and second class and 224,167 steerage, a gain of 23,617 in first and second class and 37,460 in steerage.

Opening the New Maas Iron Mine

Other Old Range Operations on Lake Superior

MARQUETTE, MICH., September 17, 1910.—George J. Maas of Negaunee, Mich., and his associates, who for more than three years past have been exploring a tract adjoining M. A. Hanna & Co.'s American mine on the Marquette range, where hard magnetic and soft hematite ores have been encountered, are organizing the North Range Iron Mining Company, with capital of $500,000. Mr. Maas and his associates have expended over $100,000 in their drilling operations and have thoroughly explored 40 acres of the property. As indicated in the detailed account of this new find given in *The Iron Age* of February 24, 1910, page 457, it is estimated that this one forty contains 15,000,000 tons of hematite, with more than 200,000,000 tons of mixed ore, which can be made marketable by concentration. The material for a steel lined shaft has been ordered, and shaft sinking will be started before winter sets in. It is Mr. Maas' plan to sink the shaft to a depth of 700 ft. before attacking the ore bodies. In the expectation of adding a number of new mines to its Upper Michigan group of iron ore producers, the United States Steel Corporation has started the exploration of a large tract of mineral bearing land in the vicinity of Clowry, in the western portion of the Marquette range. Two diamond drills have been put into commission, and they will be kept at work indefinitely. A small portion of the area is known as the North Champion mine. This property was opened on a limited scale some years ago by the Champion Iron Company, now controlled by the Steel Corporation, and a few thousand tons of ore were mined from surface workings. The area to be tested is in direct line with and apparently on the same formation as the Barnes and North Lake mines, which the Cleveland Cliffs Iron Company is opening a few miles to the east.

In the territory to the east of Republic and to the south of Michigamme, within the limits of the Marquette region, the Cleveland Cliffs Iron Company is preparing to explore the Fence Lake district. The Fence Lake country was partly tested 25 years ago. An iron bearing formation was proved, but no ore of commercial grade was found and the work was abandoned. The Cleveland Cliffs Company will make use of a diamond drill. It is not improbable that ore of merchantable quality lies at greater depth than was attained in the comparatively shallow pits put down years ago. The Cyr property in the southern part of the Marquette region is being provided with railroad facilities. The Cyr is the latest Swanzy district mine, the development of which has been started by the Cleveland Cliffs Company.

The Traders property of the Antoine Ore Company, at Iron Mountain, Menominee range, is to be tested at depth. A contract for extensive diamond drill exploration has been awarded.

The old Indiana mine, a pioneer Menominee range property in the Lake Fume district, between Iron Mountain and Norway, is being explored by the Independent Iron Company of Detroit.

There has recently been taken from Escanaba the largest cargo of ore ever loaded at any Great Lake port. This was when the Steamer Norman B. Ream departed with 13,410 net tons consigned to South Chicago. The ore was taken on at the C., M. & St. P. docks. The largest cargo previously carried out of Escanaba was slightly over 12,000 net tons, and was shipped to South Chicago two years ago.

The Iron & Steel Products Company's Affairs.—The detached material of the several subsidiary plants of the Iron & Steel Products Company, Philadelphia, Pa., will be sold by the receivers, W. Vernon Phillips and Jacob M. Schenk, as follows: That at the Lebanon Chain Works, Lebanon, Pa., October 6, at 12 o'clock; on the same day, at 2 o'clock, that at the West End Iron Company's works, Lebanon; that at the Bristol Iron & Steel Company's works, Bristol, Pa., October 7. By order of court, the Hollidaysburg Iron & Nail Company, Hollidaysburg, Pa., another subsidiary concern, will be offered for sale at that place September 30, to satisfy two mortgages, one of $25,000 and one of $10,000. The receivers are unable at this time to give any information as to the ultimate solution of the company's affairs.

The Inland Steel Company's Good Year

The Inland Steel Company, Chicago, has issued its report for the year ended June 30, 1910, showing the following financial results:

Sales, less discount and exchange	$9,816,093
Cost of production, &c.	8,184,130
Gross earnings from operation	$1,631,963
Other income	2,174
Total income	$1,634,137
Interest	168,750
Net income	$1,465,387

From the net income there were deducted for the year dividends of $404,577, and depreciation reserve $150,000, leaving a surplus for the year of $910,810; previous surplus, $1,505,607; total surplus, $2,416,418.

Brass Manufacturers' Meeting.—The National Association of Brass Manufacturers held an important meeting at the Hotel Pfister, Milwaukee, Wis., September 14. A number of new members were taken in. The question of the adjustment and equalization of freight rates came up for consideration. A committee was appointed to investigate and report results of the best methods of modern foundry equipment and the most satisfactory way of melting metals. The matter of costs was extensively gone into and a committee appointed to take this question up in detail. A committee was appointed for the standardization of sizes, threads and openings in lavatories. The several committees are to report at the next meeting, which will be the annual meeting of the association, and will be held in New York City, December 14.

Munroe & Sons' New Boiler Shop.—The R. Munroe & Sons Mfg. Corporation, Twenty-third street, Pittsburgh, is erecting a new steel building, 70 x 200 ft., to be equipped with a 25-ton electric traveling crane, not yet purchased; a 200-ton Wood hydraulic press for heavy flanging; punches, toggle presses, &c. This is an addition to the present building, and will be used as an erecting shop, more than doubling the present capacity. It will be ready for operations about October 15. The company manufactures Munroe patent water tube boilers, large oil and water storage tanks, riveted steel pipe, plate work for iron and steel works, &c.

The Crucible Steel Company of America, Oliver Building, Pittsburgh, has received an order from the Government for 1200 12-in. armor piercing projectiles; also for a large number of 8 and 10 in., and for a number of 5 and 6 in. All this material will be made at the Atha Steel Works, Harrison, N. J., operated by the above-named company.

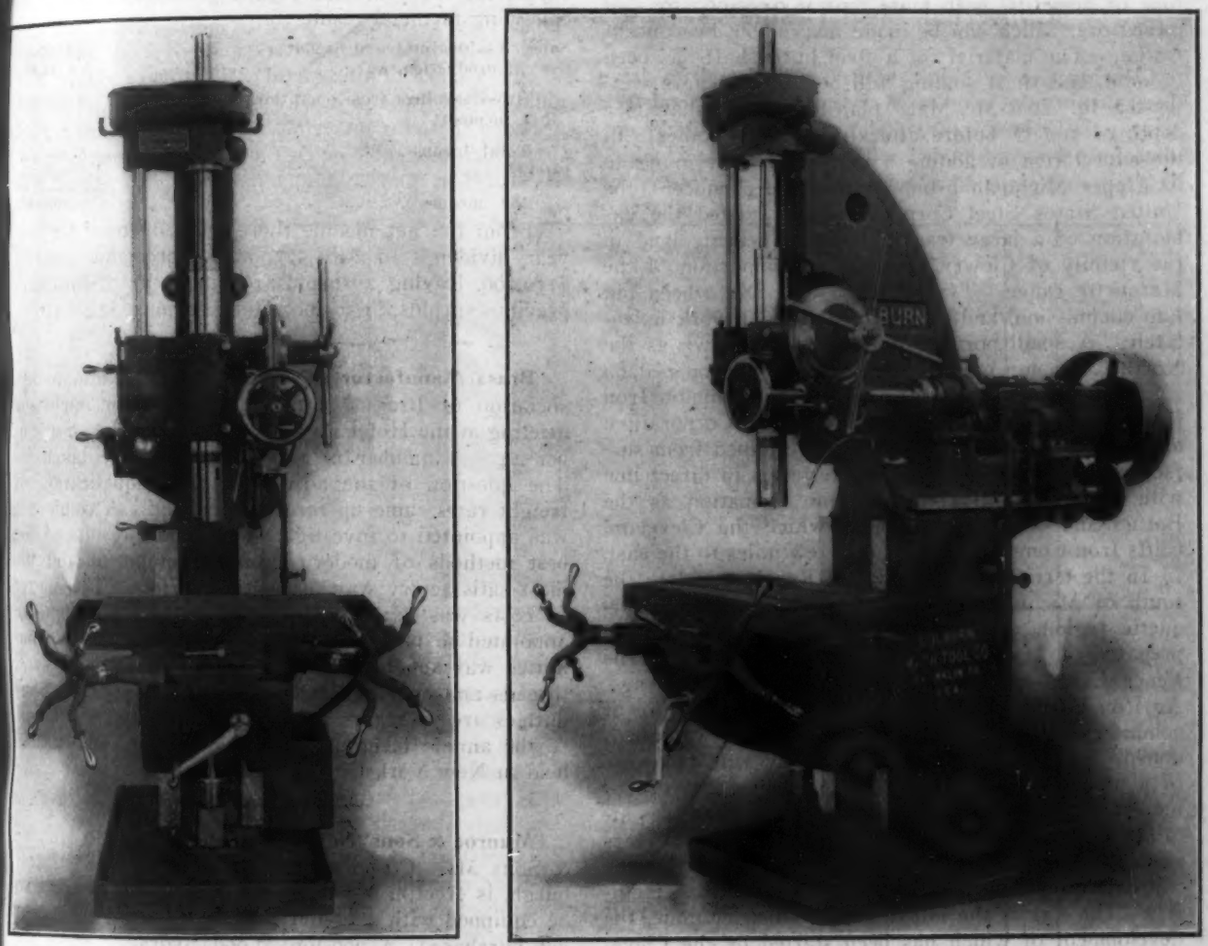
The time for receiving bids for the building of two battleships for the Chilean Navy has been extended to October 15. It is possible that specifications which now require that guns and other equipment be of English design and manufacture will be modified so that American shipyards may make bids for the contracts.

The Colburn High-Duty Drill

With the Improved Compound Table

At the convention of the American Railway Master Mechanics' and Master Car Builders' associations at Atlantic City last June, the Colburn Machine Tool Company, Franklin, Pa., exhibited a heavy duty drill that was of unusual interest, not only because of its constructural features, but also by reason of the results in the way of rapid drilling which it makes possible. An improvement which tends to increase the usefulness of the tool is the new compound table, and two views of the tool equipped with it are given herewith.

As will be noticed from the engravings, this table



Two Views of a High-Duty Drill with Improved Compound Table as Built by the Colburn Machine Tool Company, Franklin, Pa.

is very different from the ordinary type and is a valuable adjunct to the machine. The table has a working surface of 16 x 30 in. and is provided with a rapid movement of 20 in. longitudinally and 8 in. transversely through worms and racks. The operator standing directly in front of the table can manipulate it forward or back or longitudinally without moving from his position. This table possesses all the advantages of the older circular type and at the same time the disadvantages, such as springing, are eliminated, as it is supported by a heavy bracket or knee underneath and an elevating screw as well, which it is claimed prevents the slightest springing. A much quicker adjustment is obtained with this table than with the older style. A large chip pan is provided at each end, as well as an oil groove running lengthwise at each side, arranged so that all the lubricant running into the chip pan at the farther end is drained back through a cored opening in the table to the pan nearer the supply tank. The lubricant is taken from this pan to the tank through a hose and connection, and no matter how large a stream is used all the lubricant drains back to the supply tank.

The machine is built on the unit system—that is, the speed changing mechanism is in one separate box, the feed change gears are inclosed in another separate case, and the head is a third unit entirely independent of the other parts. All the gears used on this machine either run in a bath of oil or are made of steel and hardened. The main driving gears transmitting power to the spindle are of the helical type, which is comparatively noiseless in operation. These are made of steel and the teeth are ground to insure smooth running. The gears connecting the speed box with the shaft passing through the feed box at the side of the column are also helical and hardened.

Power is transmitted to the speed box, which is located between the driving pulley and the column of the machine itself and contains all the gearing required for the eight spindle speeds, all of which are made by two levers at the front of the machine. Four of these changes are effected by engaging a hardened dive-key with different gear combinations, while the remaining four are obtained through back gears. From the speed box the drive goes to the upright shaft and from there to the drilling spindle itself by spur gears which are 10 in. in diameter.

The spindle is 2½ in. in diameter in the sleeve and the nose is 3 13-16 in. in diameter and has a No. 5 Morse taper. The spindle speeds vary from 45 to 520 rev. per min. when the driving pulley is making 500 rev. A power feed of 16 in. is provided for the spindle, which is 12½ in. from the face of the column.

Six changes of feed, varying in approximately geometrical progression from 0.009 and 0.06 in. per revolution of the spindle, are provided and are obtained through positive gears encased and running in an oil bath. These changes are made by a dive-key and back gears and the feeding movement is trans-

mitted to the spindle through a large diameter worm gear. A dial graduated in thirty-seconds of an inch is mounted on this gear, thus enabling the operator to measure the depth drilled accurately. This dial is adjustable and has a pawl which may be set to trip the feed at any point in the spindle travel, or the feed may be tripped by hand from the operator's position. A safety shear pin placed on the worm shaft protects the mechanism from injury.

In a series of tests made using Celfor high speed twist drills, cutting speeds as high as 200 ft. per min. in cast iron were obtained, although 125 to 150 ft. per min. were used in most cases, which was undoubtedly due to the fact that the nature of the work was the limiting factor rather than the drill or the machine itself.

Converted Steel Castings

During the past few years many foundries have been turning out semi-steel castings. These semisteels vary greatly in mixture and quality, and should not, therefore, be confounded with converted steel, which is the name given to a new metal, recently placed on the market by the General Foundry Company, Bradford, Pa.

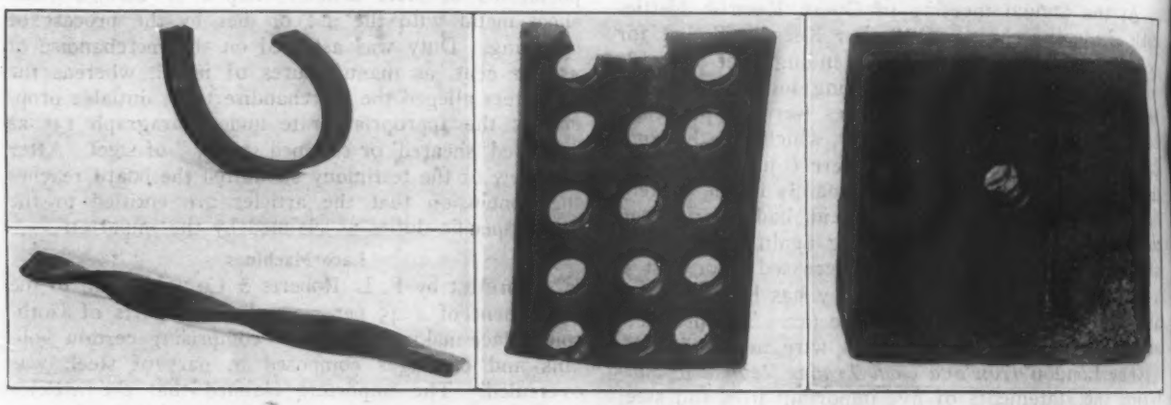


Fig. 1.—A ¼-In. Piece Bent Cold in Circle.
Fig. 2.—Same Stock Twisted Cold.
Fig. 3.—A ½-In. Piece with ⅝-In. Holes Cold Punched.
Fig. 4.—Piece 5 In. Square with ¾-In. Hole Drilled Through It.

Specimens of the Possibilities of Converted Steel, Made by the General Foundry Company, Bradford, Pa.

Details are withheld as to the manufacture of this metal, the materials used in the mixture as well as the process of annealing being kept secret. However, the mixture is melted in an air furnace, charcoal pig iron being the principal item of the mix. The most important part of the manufacture is the annealing process which is done in a muffle furnace and differs radically from the annealing process used by malleable iron foundries. It is much shorter, taking but three days from the time the metal is placed in the annealing oven until it is taken out.

The properties of this metal resemble very closely the open hearth steel casting, the tensile strength being from 10,000 to 20,000 lb. in excess of malleable iron. The elongation, however, will greatly exceed that of either the malleable iron or the average steel casting. This metal being soft is very easily machined. It is claimed to be uniform all through, containing no hard spots, such as are usually found in the larger sections of malleable iron, and does not contain blowholes so prevalent in cast steel. Any defect in converted steel will show on the surface, so there is not a large labor loss by encountering blowholes when machine work is nearly completed.

The segregation in this metal, it is said, does not affect the casting as in cast steel, and castings with sharp corners and deep pockets can be made perfect as a solid piece, thereby making these points as strong as any other part of the casting. Castings can be made from this metal weighing up to 1200 lb. and of up to 6-in. section. Owing to the short annealing process, deliveries can be made within one week from receipt of patterns.

The following table gives the average result of actual tests made with several bars of this metal:

Tensile strength, pounds per square inch	50,000 to 70,000
Elastic limit, pounds per square inch	32,000 to 40,000
Elongation, per cent	7 to 17
Reduction in area in 3 in., per cent	10 to 18

The sulphur, phosphorus and manganese in this iron run considerably lower than malleable iron, the sulphur being especially low, running less than 0.031. The silicon will average about 0.5 per cent., but this is varied somewhat in order to suit different weights of castings.

That the metal is extremely tough can be seen by the illustrations. Fig. 1 shows a ¼-in. piece bent cold in a circle, Fig. 2 shows a piece of the same size twisted cold, Fig. 3 shows a piece of ½-in. metal with several ⅝-in. holes punched through it cold, and Fig. 4 shows a piece of this metal 5 in. square with a ¾-in. hole drilled through it. From the above it can be readily seen that this material can be used for any purpose for which malleable or cast steel is at present used, and it is also to some extent superceding the use of drop forgings. It is being placed on the market at about the same prices as are being asked for ordinary malleable iron.

Coal Dust as a Cause of Mine Explosions.—George S. Rice, chief mining engineer of the Bureau of Mines, Washington, has made a series of experiments from which he concludes that the great coal mine disasters are due chiefly to coal dust and not to fire damp. While it has been supposed that explosions of coal dust follow those of fire damp, the experiments at the testing station at Pittsburgh have shown that coal dust alone will explode. Details are given in a bulletin issued by the bureau of a number of coal mine disasters in which the loss of life is said to have been due to the effects of coal dust, which if not the initial cause in all cases was an agency of destruction. Fire damp, it is stated, carries its own warning. Whenever gas is present in a mine in dangerous quantities a blue flame rises from the safety lamp to notify the miner, but coal dust, though visible, does not attract attention unless present in large quantities.

Work has begun at Gary, Ind., on the construction of 150 concrete houses for employees in the mills of the American Sheet & Tin Plate Company, now building there. Most of the new houses represent a cost of about $2500 and, as in the case of other concrete buildings at Gary, the cement will be furnished by the Buffington plant of the Universal Portland Cement Company.

Earnings of British Iron and Steel Companies

Two important British steel companies have had their annual meetings recently and their statements of earnings are interesting as showing the condition of trade in Great Britain in the past year. For the year ending June 30, Bolckow, Vaughan & Co., Ltd., earned £286,135 after providing for depreciation, this amount comparing with £241,675 for the previous year. The capital account was reported at £3,979,239. The chairman said that in the opinion of the board the production of Cleveland iron is now in excess of the world's demand. He thought that producers of pig iron in Great Britain should consider whether it is wise to allow output so far to exceed demand. Their reserves of coal and iron ore cannot be replaced and care should be taken to conserve these stores. One remark of the chairman will cause a smile to readers connected with the American iron trade. He said that in the United States production is better controlled by agreement than in Great Britain and oversupply of any product is prevented. The company declared a dividend at the rate of 6 per cent. a year.

At the annual meeting of Guest, Keen & Nettlefolds, Ltd., the chairman, Arthur Keen, said that for a considerable part of the year ending June 30 trade conditions were uncertain, causing much anxiety to the management. The total sales were 10 per cent. below those of the fiscal year 1907, which was the company's best year, while wages were 6 per cent. more than in 1907, the increase being mainly in the colliery department. The company, he said, had a long road to travel upward before reaching again the business and profits of 1906 and 1907. Increased labor cost is a constant factor and the company has had considerably increased charges for income tax. The products are sheet bars, angles, plates, bars, wire, nuts and bolts.

The London *Iron and Coal Trades Review* in analyzing the statements of five important iron and steel companies in Great Britain for the past six or eight years, says of Guest, Keen & Nettlefolds that the company's serious decline in profits in recent years, which in the last financial year carried them below those of the years 1903-05 (a period of depression) is somewhat disquieting. In the past year the profits were £348,093, against £371,724 in the preceding year, and £454,716 and £470,511 in the financial years 1908 and 1907, respectively. However, in the past four years the company has paid 15 per cent. dividends on its ordinary shares.

In the case of Bolckow, Vaughan & Co. (pig iron, billets, rails, plates and bars) the 6 per cent. dividend on ordinary shares last year compares with 5 per cent. in the preceding year, 6 per cent. in the fiscal year 1908 and 10 per cent. in 1907. The earnings of the company in 1907 were £607,322. In the last nine years the book value of the company's property has increased by over one million sterling and now stands close to four millions. The debenture debt, however, which was very slight in 1901, is now £826,000.

John Brown & Co., Ltd. (rails, plates, shapes and bars), made a gross profit of £236,000 last year, against £239,000, £252,000 and £262,100 in the immediately preceding years, respectively. The dividend on ordinary shares has been 7½ per cent. in each of the past two years, against 10 per cent. in each of the three preceding years. The plant of this company is valued at £4,000,000.

The Ebbw Vale Steel, Iron & Coal Company, Ltd., has plant valued at £1,100,000. Its main business is coal, the output being 1,750,000 tons, while that of steel is about 175,000 tons. The gross profits last year were £90,000, against £77,300 in the preceding year and about £161,000 in each of the years 1908 and 1907. The ordinary dividends in 1910 and the three preceding years were 5 per cent., 2½ per cent., 10 per cent. and 10 per cent., respectively.

The Consett Iron Company (pig iron, bars, plates and shapes) has been exceedingly prosperous and in the years 1900, 1901 and 1907 paid a total of 140 per cent. in dividends. In the past 13 years £365,000 has been set aside for new construction and £471,000 for depreciation and for special purposes. The earnings of the company were £202,000 last year, against £229,000, £363,00 and £486,000, respectively, in the three preceding years. The dividends for the past year and the three preceding years were 22½ per cent., 20 per cent., 33 1-3 per cent. and 40 per cent., respectively.

The five companies referred to above have an average capital of £3,000,000. Leaving out bonded indebtedness, their combined capital, ordinary and preference, is £10,923,000. The combined profit on last year's business was about £1,100,000, or a little over 10 per cent.

Customs Decisions

Sheet Steel Stamped Wares

A. & H. Veith, New York, were successful before the General Board in obtaining lower duty on importations of steel articles shaped or formed from sheet metal with the use of dies by the process of stamping. Duty was assessed on the merchandise at 45 per cent. as manufactures of metal, whereas the importers alleged the merchandise to be dutiable properly at the appropriate rate under paragraph 135 as "pressed, sheared, or stamped shapes" of steel. After a review of the testimony submitted the board reaches the conclusion that the articles are entitled to the lower specific duties as claimed by the importers.

Lace Machines

A protest by F. L. Roberts & Co., objecting to the assessment of a 45 per cent. duty on parts of Gothrough lace-making machines, comprising certain bobbins and carriages composed in part of steel, was overruled. The importers claimed that the articles are exempt from duty under the provisions of paragraph 197, tariff act of 1909. The record shows that the metal articles assessed with duty are extra parts of the machines and are, therefore, not entitled to the free entry claimed by the protestants.

Metal Washers

The General Board, in sustaining a protest filed by S. Hoffnung & Co., New York, has decided that metal washers with an improved device to prevent the nut from slipping after it has been properly fastened are dutiable properly as "washers" under paragraph 162 of the tariff act of 1909, rather than as manufactures of metal not specially provided for under paragraph 199 of the act. The merchandise was invoiced as "fast-nut" washers, and was classified by the custom house authorities as manufactures of metal, whereas the importers claimed that the articles are "washers" and properly dutiable at three-quarters of 1 cent per pound under paragraph 162, which specifies "washers of wrought iron or steel." The question was raised at the hearing of the protest whether the articles are in fact "washers," and, second, whether if in fact "washers" they are not designed for use on automobiles and dutiable as parts of automobiles. On this point General Appraiser Fischer rules that a patented metal washer, though it be used on automobiles, having no adaptation for that purpose, and, in fact, commonly and practically used otherwise, is dutiable as a "washer" rather than as "parts of automobiles."

The Rockwell Furnace Company, 26 Cortlandt street, New York, has opened a branch office in the Fisher Building, Chicago, Rooms 718 and 719, in charge of A. L. Stevens, an experienced furnace engineer. This will place the company in closer contact with the Western trade.

Twinvolute Turbine Pumps

The Line Built by the Watson-Stillman Company

The special feature of the latest addition to the line of turbine and centrifugal pumps built by the Watson-Stillman Company, New York City, is what is known as the Twinvolute waterway. This, as distinguished from the ordinary concentric waterway, is of gradually increasing cross sectional area both ways circumferentially from the point opposite the discharge outlet to the outlet. The principle is to increase the volume of the passage as the volume of water increases, so that the velocity may be practically constant instead of constantly increasing, as must be the case in a concentric passage or one of uniform cross section. Theoretically, in a concentric waterway pump, the water flows in equal volumes, both ways toward the discharge, but it is claimed by the builder of this pump that by test it has been proved that the parting is seldom at the mid-point—that is, diametrically opposite the pump discharge outlet—and that no two pumps show the dividing point in the same place due probably to inaccuracies and varying smoothness of the inside surface of the pump shell. It is, therefore, claimed that the water must do more work on one side than on the other in reaching the discharge outlet with a resulting drop in the pump efficiency. In the Twinvolute pump there is a constriction at the mid-point of the passage that compels the water to part at the correct center and flow in equal quantities in both directions.

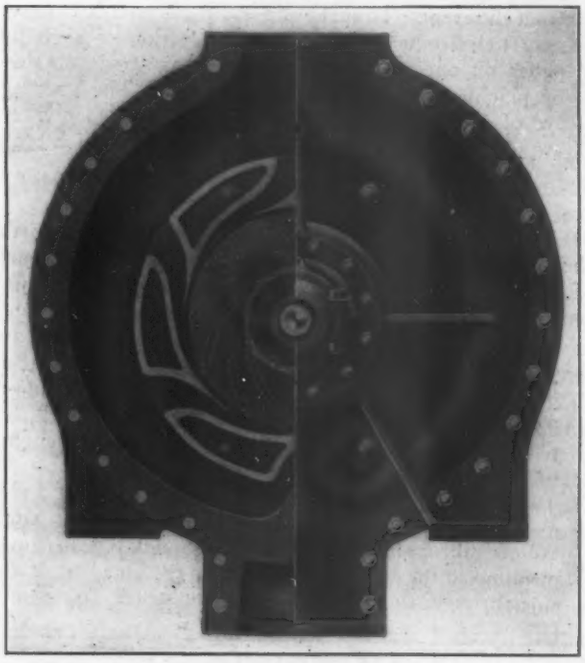


Fig. 1.—End Elevation and Section of a Watson-Stillman Twinvolute Turbine Pump.

A further advantage of the Twinvolute waterway over the ordinary concentric waterway is that it enables the pump to be made somewhat smaller and more compact for a given duty, so that its original cost is less, and it is also claimed to take less power and give less vibration. A reason for the latter is that the center of gravity of the pump is lower and the shaft center nearer the base. Having uniform pressure and velocity in the waterway, the Twinvolute form practically eliminates eddies and so increases the efficiency. The efficiency is further favored by the proper proportioning of the diffusion vanes through which the water passes from the impeller to the waterway, these vanes being so designed in cross section and curvature as to convert the velocity of the water into pressure, leaving only that which exists in the volute. Fig. 1, showing an end elevation of the pump half in section, reveals the form of the waterway and diffusion vane passages, and shows by white dotted lines the form of the passages in the impeller. Fig. 2, an axial section of a single stage balanced suction Twinvolute pump, shows additional details of the construction.

The Complete Line

The builder's line includes sizes and types of pumps suitable for all kinds of service, including that for city water works, boiler feed, fire protection, irrigation, drainage, &c., there being both horizontal and vertical types of single and multi-stage pattern. Fig. 3 shows an 8-in. single-stage Twinvolute turbine pump driven by a 50-hp. General Electric variable speed induction motor. This pump operates against a constant head with a variable delivery, and is one of two sets used in the heating system of the United States Navy Yard at Norfolk, Va. The overall efficiency has been found to be 70 per cent., which is about 20 per cent. higher than was called for by the Government specifications.

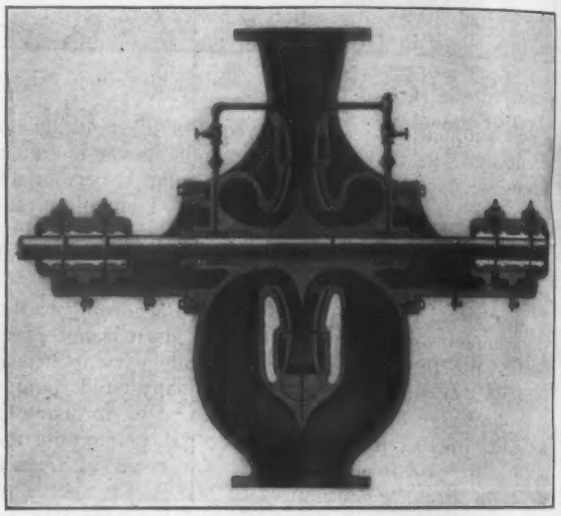


Fig. 2.—Axial Section of a Double Suction Single-Stage Twinvolute Pump.

Fig. 4 shows 16-in. single-stage tandem Twinvolute turbine pumps driven by a Kerr steam turbine. This outfit is used in connection with a condensing plant for pumping water to a barometric condenser and cooling tower. It has a capacity of 22,000,000 gal. per day. Sectional views of a two-stage Twinvolute turbine pump with bearings on the casing are given in Fig. 5 (the pump is also made with outboard bearings), and Fig. 6 is an elevation partly in section of a vertical three-stage Twinvolute turbine pump, built for a municipal water works. The water supply is obtained from 7-ft. wells, in which the water level is 100 ft. below the surface. The wells are about 24 ft. in diameter, and the pump in this case runs submerged. The street mains are 10 ft. under the surface, and are kept under a pressure varying from 40 to 125 lb. The pump shown has a capacity varying from 770 to 2500 gal. per minute, and is driven by a three-phase variable speed vertical alternating current motor.

The Twinvolute pump is considered an especially good form for house tank service, and when electrically driven and operated in connection with the com-

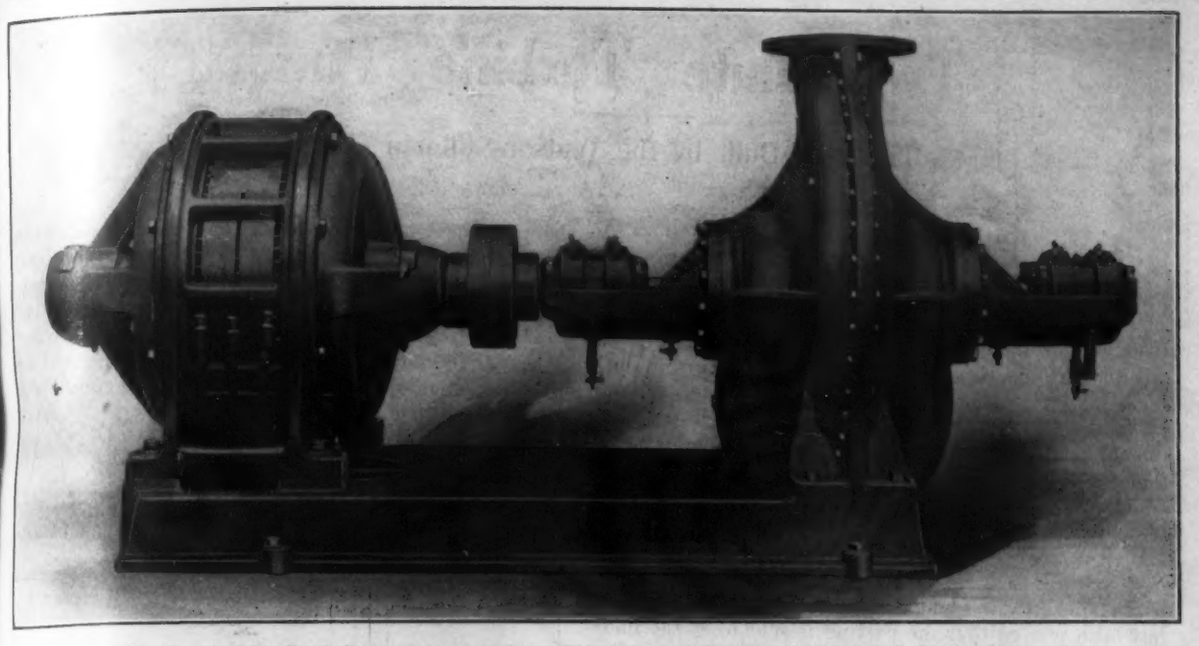


Fig. 3.—An 8-In. Single Stage Twinvolute Pump Driven by a 50-Hp. General Electric Induction Motor.

pany's automatic tank switch, requires substantially no attention. The tank switch is a simple device operated through a float to start or stop the pump at certain set low and high water levels in the tank. Twinvolute turbine pumps for house tank service may be obtained with capacities ranging from 500 to 5000 gal. per hour and are suitable for buildings of any hight.

In general the pumps are designed according to the requirements of any individual case, as it is not practical to use the same pump for widely varying heads, capacities or suction lifts. The company builds pumps with discharge outlets of from ⅜ to 72 in. in diameter for capacities of from 2 to 150,000 gal. per minute for suction lifts of from 1 to 25 ft. for heads of from 1 lb. up to discharge pressures of 500 lb. for speeds of from 50 to 3000 rev. per min., and for operation by gearing, belt, silent chain or direct connected electric motor, gas engine, steam engine, steam turbine or water turbine. The vertical pumps are especially suitable for pumping sewage, for reclamation service, mine drainage, emptying dry docks, &c.

Balanced End Thrust

As shown in Fig. 2, where the suction inlet is at the bottom and the discharge at the top the water in the suction pipe must divide in the Y-passage of the single stage Twinvolute pump and flow in equal amount into each side of the impeller. There is, therefore, no unbalanced end thrust where this double or opposed suction impeller is used. The same idea of symmetry is embodied in the impeller design, so that as the water enters the eyes on each side there is equal pressure in opposite directions. The divided suction is also especially desirable in high speed and large sized pumps, since the double openings allow the impeller to be made smaller in diameter than where the water must all flow into one set of openings. This means a smaller pump and a consumption of less power.

The two-stage Twinvolute pump is balanced in much the same way although the construction is somewhat different. To make the pump compact it is necessary to introduce water into the suction of each impeller on one side only, but good balance is obtained by placing the impellers back to back. The openings are of equal area and the surfaces exposed to pressure are about equal at each pressure chamber, which tends to maintain the balance.

Single-Stage Twinvolute Pump

A single-stage pump should be used only when the head is less than 100 ft. It consists of two nearly similar castings which when bolted together form a case or shell in which a single impeller wheel rotates. The pump body also carries the flanged suction and discharge openings, the shaft bearings and the stuffing boxes. It is provided with two or four feet and is mounted upon and bolted to a strongly ribbed bed plate which also provides support for a motor, engine, or whatever may be used for the drive.

Its operation may be understood from Figs. 1 and 2. Water enters the suction opening and passes in equal volume through the Y-branch channels to the inlet openings at the center at each side of the impeller. Passing through the impeller eyes the water comes into

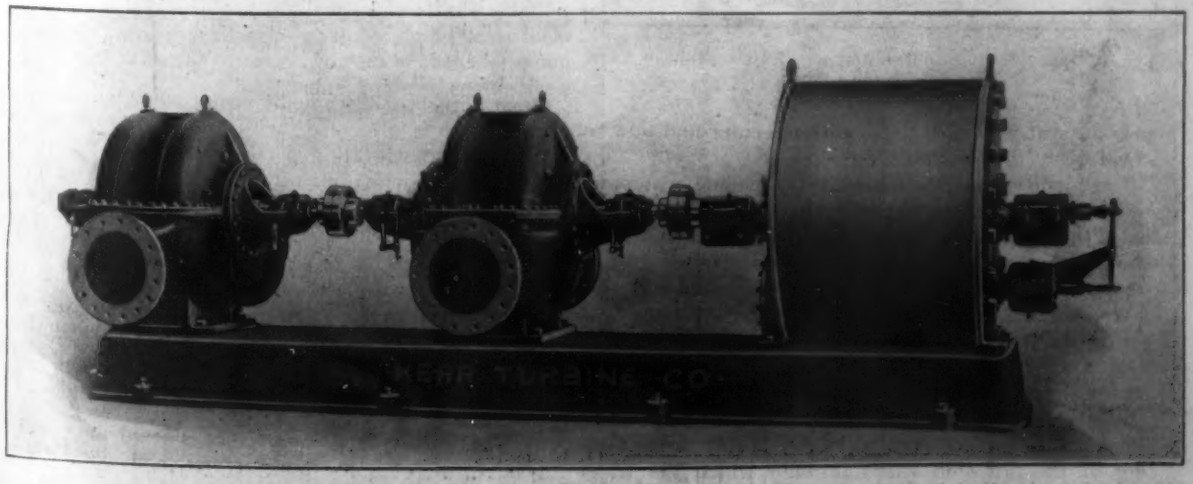


Fig. 4.—Two 16-In. Single Stage Tandem Twinvolute Pumps Driven by a Kerr Steam Turbine.

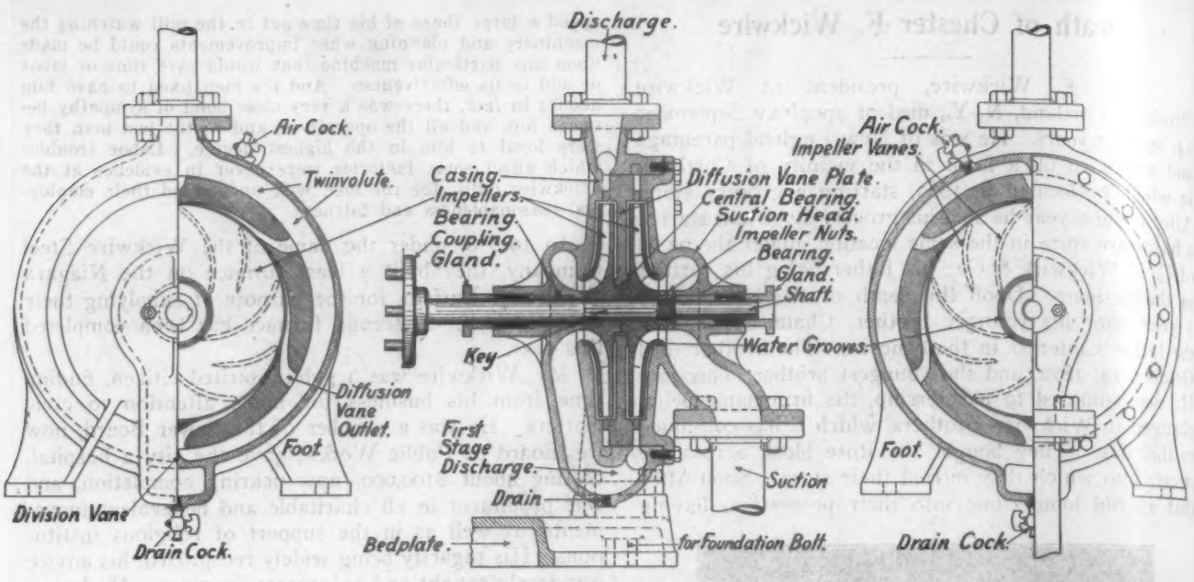


Fig. 5.—End, Axial and Sectional Elevations of a Two-Stage Twinvolute Pump with Shell Bearings.

contact with the impeller vanes which impart velocity to the water. Passing through the outlet openings at the outer rim of the impeller wheel the water comes in contact with the diffusion vanes which change the kinetic energy of the fluid into pressure gradually and without shock. The water then enters the Twinvolute chambers and passes out at the pump discharge.

Two Stage Twinvolute Pump

These pumps should be used for obtaining higher pressures, or delivering against greater heads than is practical with the single stage pump. It consists of two separate turbines inclosed in one shell and arranged so that the water passes successively through them before it enters the discharge outlet. The water enters the second pump under a pressure corresponding to the discharge pressure of a single stage pump, so that practically double the pressure results from passing through the second stage. The pump shell differs from that of the single stage Twinvolute in that it consists of a casing machined to receive the two impeller wheels and the central or diffusion vane plate which separates them, and is closed by a cover plate that bolts on the suction side.

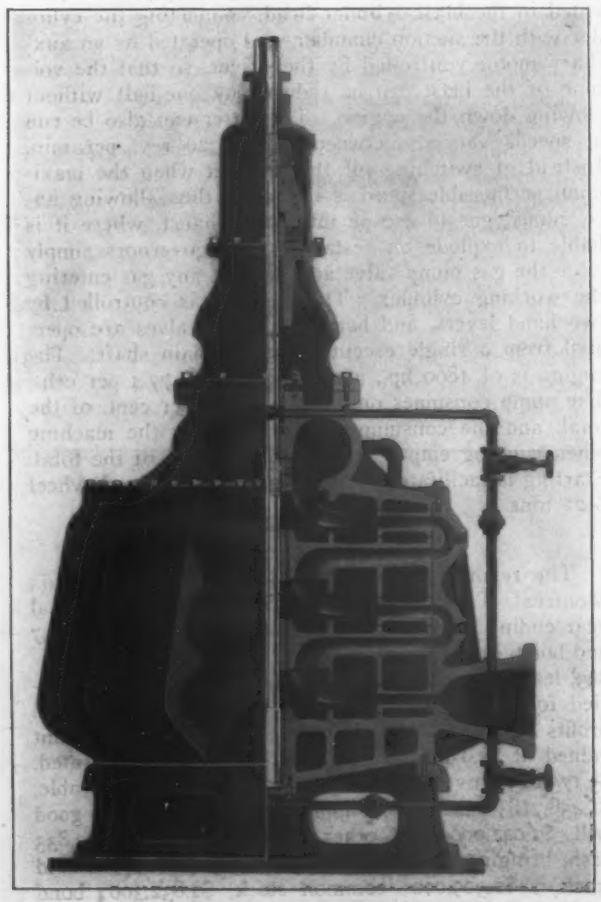


Fig. 6.—Elevation Half in Section of a Vertical Three Stage Twinvolute Turbine Pump.

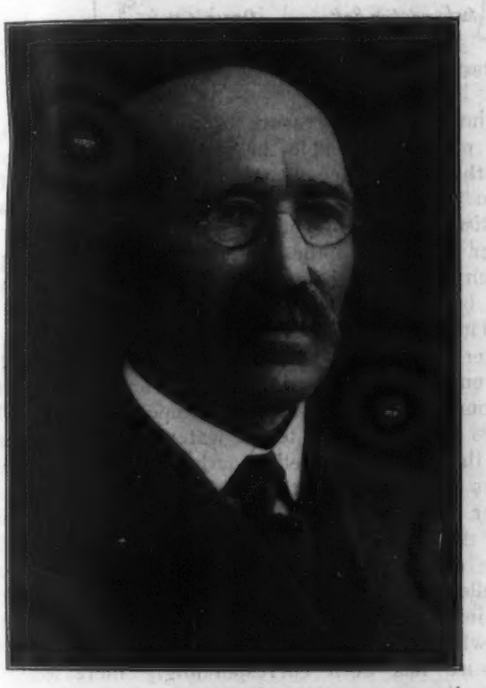
The operation can be understood from Fig. 5. Water enters through the suction opening in the elbow and enters the eyes or inlets of the first impeller where it comes in contact with the impeller vanes. These vanes impart velocity to the water, and the latter passing through the impeller outlets meets the diffusion vanes which change the velocity into pressure. The water then passes through the diffusion vane openings into the Twinvolute chamber, and through the first-stage discharge passage into the eyes of the second impeller. The water, which has a pressure due to the first impeller, is again acted on as in the first operation, and when it leaves the second set of diffusion vanes its pressure has been correspondingly increased. The water then passes into the second Twinvolute chamber and out through the discharge opening.

Vertical Pumps

Where a pump must run partly or completely submerged, or where the water contains mud, slime or trash that will clog up the foot valve, a vertical type is practically necessary. These in the Twinvolute style are made so that they can be placed in a damp pit or among dirty surroundings, while the motor, being more delicate, can be located somewhere above where it will be out of the reach of destructive influence. Suitable shafts and couplings are provided, so that the motor may be placed at any practical distance above the pump where it is easy of access to the attendant. Vertical pumps running submerged need no priming, but start to work the minute the power is applied. The Twinvolute pumps of both single and double stage pattern are made in the same sizes for vertical operation as for horizontal. The vertical type is usually made with the suction on the bottom, and with feet which may be bolted to a floor or foundation. This type gives excellent service when running partly or completely submerged. It is, therefore, used widely where the water level varies, being at times above and at other times below the pump. For use where the liquid pumped contains too much solid matter to pass through a turbine pump, the company also builds vertical centrifugal pumps, which are especially adapted to draining cellars, pits, excavations, coffer dams, &c., and for use where the sewer level is higher than the floor line.

Death of Chester F. Wickwire

Chester F. Wickwire, president of Wickwire Brothers, Cortland, N. Y., died of apoplexy September 14, aged 67 years. He was of New England parentage and was born on a farm in the vicinity of Cortland, in which he located in 1865, starting a grocery store. After about a year he sold his grocery stock and started a hardware store in the same location, under the name of C. F. Wickwire & Co., his father being his partner in the business. Upon the death of the latter about a year later his younger brother, Chauncey J., took the father's interest in the concern. The brother died October 14, 1872, and the youngest brother, Theodore H., was admitted to partnership, the firm name being changed to Wickwire Brothers, which it has continued to this day. They bought the Rose block across the street, into which they moved their store. Soon after that an old loom came into their possession, having



CHESTER F. WICKWIRE.

been taken in some way in the course of trade. This led to the development of an entirely new business as narrated by the Cortland *Standard*:

Chester F. Wickwire, who was possessed of a very exceptional mechanical and inventive mind, began examining the loom, which had been considered as so much junk, and fixed it up to see what it would do. He conceived the idea of its weaving wire into cloth for screens and other purposes and worked upon it till it would operate perfectly. In 1873 the firm began the manufacture of wire cloth and wire goods in a little building in the rear of the store. The business increased and the factory was constantly added to till it occupied all the available open space within that square. In 1876 the hardware business was disposed of and in 1881 the drawing of fine wire was begun in the large brick building erected for that purpose on South Main street. In 1884 the wire weaving and wire goods department was also moved to that location.

In 1892 the firm incorporated under the same name, Chester F. being the president of the company and Theodore H. the treasurer. The business has steadily increased in volume and in scope until now it includes a rod mill and an open hearth steel plant, in addition to the wire drawing and wire weaving departments, with several side lines of production. It is the leading industry of Cortland, and its plant occupies 36 acres of ground which are nearly covered with buildings. It is also known as the largest and best equipped factory for the manufacture of this line of goods in the United States.

The machinery used in weaving, spooling, painting and finishing wire cloth has been largely invented by Mr. Wickwire and nearly all has been built under the special orders of the company. There was not a machine in the whole plant that he could not personally operate. He used to spend a large share of his time out in the mill watching the machinery and planning what improvements could be made upon any particular machine that would save time or labor or add to its effectiveness. And the men liked to have him about; in fact, there was a very close bond of sympathy between him and all the operatives, and to the last man they were loyal to him in the highest degree. Labor troubles which affect some factories were never in evidence at the Wickwire mills, for the men well understood their employers' reasonableness and fairness.

In 1907-8, under the name of the Wickwire Steel Company, they built a blast furnace on the Niagara River near Buffalo, for the purpose of supplying their own pig iron. A second furnace has been completed this year.

Mr. Wickwire was a public-spirited citizen, finding time from his business for much attention to civic matters. He was a member of the Sewer Board, now the Board of Public Works; gave the city a hospital, costing about $100,000, now nearing completion, and was prominent in all charitable and benevolent movements, as well as in the support of religious institutions. His sagacity being widely recognized, his advice was freely sought and as generously given. He leaves a widow and two sons, Charles Chester and Frederic Rouse Wickwire. These sons, two of the sons of his brother and the two sons of his older sister, now deceased, are all connected in a responsible way with the Wickwire Brothers industry.

A Gas Engine for Bessemer Blowing

A gas blowing engine installed at the basic-Bessemer works of the Haspe Iron & Steel Works, Haspe, Westphalia, by the Siegener Maschinenbau A. G. (Oechelhauser) is of the two-cylinder, two-cycle type, with 6-ft. stroke. The engine cylinder is 31 in. in diameter and the blower cylinder 48 in., the maximum volume of blast being 16,000 cu. ft. per minute. In order to start or stop the blast suddenly a by-pass is provided in the blast cylinder head, connecting the cylinder with the suction chamber, and operated by an auxiliary motor controlled by the driver, so that the volume of the blast can be reduced by one-half without slowing down the engine. The latter can also be run at speeds varying between 85 and 20 rev. per min. Instead of switching off the ignition when the maximum permissible speed is exceeded, thus allowing unconsumed gas to escape into the exhaust, where it is liable to explode on restarting, the governors simply close the gas pump valve and prevent any gas entering the working cylinder. The machine is controlled by two hand levers, and both admission valves are operated from a single eccentric on the main shaft. The engine is of 1800 hp., and the efficiency 77.4 per cent. The pump consumes only 91 hp., or 5 per cent. of the total, and the consumption of power by the machine when running empty is only 3.8 per cent. of the total. Starting is facilitated by the low weight of the flywheel —21 tons.

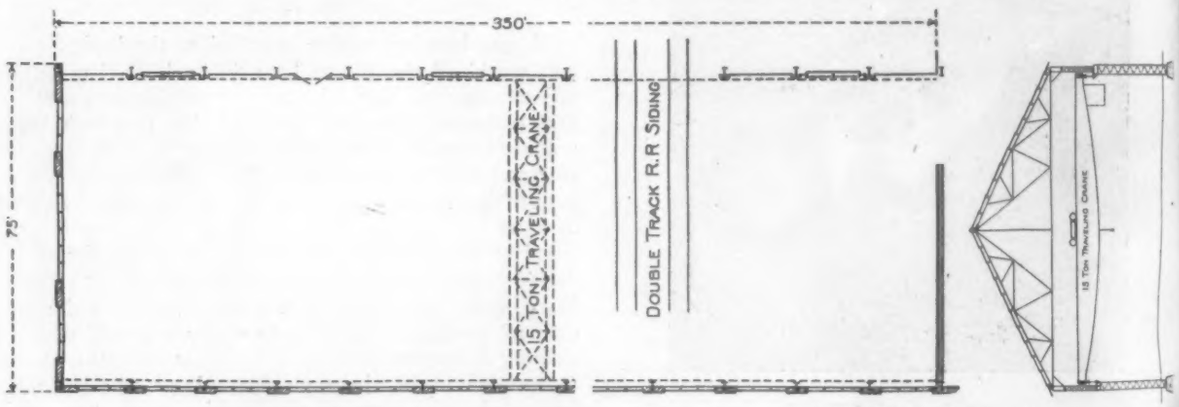
The report of the Canada Iron Corporation, Ltd., Montreal, T. J. Drummond president, for the fiscal year ending May 31, 1910, shows earnings of $265,837 and bond, interest and administration charges of $246,843, leaving net earnings of $18,994. The amount carried forward is $2683, making the total of undivided profits $149,427. The statement of assets shows plant valued at $2,939,613; mining properties, not operated, $5,175,219; investments, $955,232; accounts receivable, $1,458,718; materials, supplies, &c., $1,501,608; good will, $1,041,000, and other items, including $102,833 cash, bringing the total to $13,439,349. The preferred stock is $2,909,000; common stock, $4,832,300; bond issue, $2,920,000; accounts and bills payable, $2,533,490.

Joseph T. Ryerson & Son's Additions

Joseph T. Ryerson & Son, Chicago, Ill., have, in course of erection, additions to their already large plant which will give them an increase of floor space of approximately 85,000 sq. ft., making a total building floor area of over 800,000 sq. ft.

The new buildings are two in number, one to be devoted to machinery warehousing and display and demonstration rooms; the other to the storage of structural shapes and specialties. Both new buildings follow out the same general engineering and architectural design adopted throughout the plant, as typified in the broken plan and elevation given in the accompanying illustration. The addition to the machinery demonstration and display rooms is located north of the present machinery warehouse on Rockwell street, extending north to Fourteenth street. This building is 350 ft. long and 75 ft. wide, of steel and brick construction with tile and glass roof. The floor is 3-in. planking crossed with matched hard maple over concrete. This building will be served by a 15-ton crane, spanning the full width of the building, the runways of which will extend over double switch tracks and a wagon runway at the south end of the building.

The building will be piped for compressed air and steam and both alternating and direct electric current will be available in all parts. The building is of fireproof construction throughout and when completed will be the largest machinery display and demonstration room in the world, maintained by one company.



Plan and Elevation of the Machinery Demonstrating Shop of Joseph T. Ryerson & Son, Chicago, Ill.

Heretofore, the machinery department of the Ryerson company has maintained merely warehousing rooms. The advantages of a building wherein machinery might be displayed in operation, or tested in view of the prospective customer, became apparent and it was decided to erect a special building, which would not only afford space for the display of the machinery in operation, but which would afford facilities for testing such machinery under the actual conditions which would be met in service.

With this end in view the new building is supplied with four kinds of electric current, and compressed air, steam, and high-pressure water, permitting the operation of steam hammers, hydraulic machinery and pneumatic machinery and tools, as well as belt and motor-driven tools. Concrete testing pits are provided, fitted with foundation bolts which are adjustable to receive all of the heavier class of machinery where substantial foundations are necessary in testing.

The structural specialty building is immediately south and adjacent to the present structural warehouse and extends 500 ft. from Rockwell street east to the Pennsylvania Railroad tracks. The building is 100 ft. wide and of steel construction throughout. This building will be served by two cranes, each of 5 tons capacity and of 100 ft. span. Double switch tracks extend across the east end, while in the west end there is a wagon runway.

These extensive additions to the Ryerson plant, coming at this period of general dullness and unsettled business conditions are significant as representing the progress which that company has made in the steel department store idea and as further exemplifying the success which has attended such concerns as are in position to supply the entire wants of steel users.

Removing the Quebec Bridge Wreck

The *Engineering Record* of September 17 has an interesting article on the manner in which the wrecked superstructure of the Quebec Bridge is now being removed. In the collapse of this bridge, August 29, 1907, about 17,000 tons of steel fell in the St. Lawrence River, a considerable part of it, some 9000 tons, being in shallow water or exposed at low tide. A large amount of this steel has been cut up by the oxy-acetylene apparatus supplied by the Linde Air Products Company, Buffalo, N. Y. Up to date about 4500 tons has been removed, clearing up nearly all of the material adjacent to the main pier, where the heaviest and largest members were concentrated. So far the members have been cut up and dislodged entirely by the use of the oxyacetylene torch and by dynamite, and rivets have been cut out of the removed pieces by hand. The application of dynamite consists substantially in attaching a continuous row of sticks of dynamite to the member on the line in which it is desired to cut it and then exploding them in the usual manner by a battery.

Sections of both of the main vertical posts over the river piers, the heaviest members in the bridge, were driven deep in the ground. Their weight is estimated at about 50 tons, but they are so firmly held in the hard ground that all efforts to dislodge them by dynamite have proved unsuccessful, as has the application of four tackles operated by a hoisting engine. It is planned to make another effort by using a pair of powerful hydraulic jacks engaging the upper ends of the members and reacting against the ground. It is believed that with these the pieces can be started and afterward withdrawn more easily. It is estimated that it costs about $1 per ton to cut out the rivets in the large compression members and reduce them to merchantable scrap, which is said to be sold in Montreal for $12 per ton. Charles Koenig & Co. are the contractors for removing the steel.

Negotiations for the arrangement of a reciprocity agreement between the United States and Canada will be opened next month. Ambassador Bryce has assented to the negotiations being carried on directly between Canada and the United States without the formality of being conducted through the British Embassy. Sir Wilfrid Laurier, Canadian Premier, has declared in favor of an agreement.

An Efficient Labor Bureau

How the National Metal Trades Association Does This Work

One of the most important problems of shop management is not only the securing of workmen as they are needed but also the procuring of competent men for the places to be filled. During dull times there are usually plenty of good men available, but, with business conditions very good or even normal, shop superintendents and foremen have their difficulties in getting skilled workmen, and various methods are followed in finding men possessing the desired qualifications.

In solving this problem a large number of manufacturers in metal working lines, who are members of that organization, are relying largely on the assistance of the labor bureau of the National Metal Trades Association. Conducting an employment bureau was not one of the original purposes of the organization but this department of the association, without being formally planned, was forced into being and gradually developed to meet the needs of its members who asked for its assistance in securing help. The bureau originated about five years ago and has become a very important part of the association. It had its origin in requests from foremen to find places for good men, whom they were forced to lay off because of lack of work.

The National Metal Trades Association has 15 branches in the leading manufacturing centers in the Eastern and Central States, and at present has about 800 firms on its membership roll, the bulk of its members being large employers of labor. The system of conducting the labor bureau is doubtless familiar to most members of the association, as there are probably very few of them who have not been given assistance by the bureau in securing workmen.

Each Branch Has a Labor Bureau

Each branch of the association maintains an employment bureau, all being conducted along similar lines. Each member makes a daily report of the number, names and addresses of men hired, laid off, discharged or quit. When new employees are put on, the class of work they are doing is specified as well as the places where the men worked last. When a man leaves the concern's employ the cause is given. In this way a complete daily record is kept of each shop that belongs to the association. The card index system is employed, a separate card being sent in for each man employed or leaving his employment. These cards are carefully classified for future reference.

When a member makes a request on the bureau for workmen the list of the reported unemployed is gone over and postal cards are sent to a sufficient number in the trade needed, asking them to call at the office if they are still out of work or desire to make a change. This method of bringing employers and men seeking work quickly in touch operates very satisfactorily, although, as is to be expected, a portion of those written to have secured other satisfactory employment with concerns outside of the association or have left the city and are not heard from. Some who have taken employment with concerns not belonging to the association often respond to the postal cards and secure places more to their liking or more remunerative.

Good Men Specially Looked After

The association aims to keep its good men in shops of its members and if a competent employee is laid off in one shop, efforts are always made to place him in the shop of another member, rather than allow him to go to work for a concern not belonging to the association. A large number of the men, who appreciate the services of the association in providing places for them without any charge, through the labor bureau remain loyal to the organization. In providing places for workmen no distinction is made between union and non-union men, an applicant for work not being asked whether he belongs to a labor organization. A large share of the members of the association do not look to the labor bureau so much for workmen as they do for reports on the character and qualifications of the men they employ. They hire men who come to their shops seeking work and then ask the bureau for reports regarding them. Some employers, however, refuse to hire a man until they have his record from the labor bureau, and in case the man has come from a distant city and has no local record the bureau, when requested, goes to considerable trouble in securing this record from the place where the man was previously employed.

The bureau not only furnishes skilled workmen in various branches of the metal working industry but finds places for foremen and superintendents. It also aids a man already employed by a member in finding different work more to his liking. One of the unwritten rules of the association is that members will respect each other by not taking into their employ apprentices who are learning their trade in the shops of other members.

Co-operation with Other Cities

Each branch not only conducts its labor bureau in the interest of its members but co-operates with the business of other branches in other cities. There may be a scarcity of skilled mechanics in a certain trade in one city and a surplus in one or more other cities. The branch needing men will send out a call through its employment bureau to the other branches, and unless there is an unusual scarcity the desired number of men is secured. In case a sufficient supply of the kind of men needed is not readily procured from lists on hand, advertisements for men are inserted in the local newspapers. When men are sent to other cities to fill positions their transportation is paid for and they turn over their baggage and tools as security. These are forwared to the concern for which the men are to work and their transportation charges are paid back in installments out of their wages.

In case of a strike against the shop of a member the labor bureau becomes a recruiting office for workmen. In emergencies of this kind and when a sufficient number of men is not available members loan some of their employees to another member in the same or another city who is suffering from a scarcity of labor because of the strike. These loans of workmen are usually for 90 days or some other stated period. at the expiration of which time the men are sent back to their former employment.

The National Foundry & Machine Company, Connellsville, Pa., is building a core oven truck, 10 ft. by 45 in., for the J. S. McCormick Company, Pittsburgh, to be used by the Valley Iron Works, Williamsport, Pa. This company is fairly busy in its foundry, filling orders for castings for glass houses, mills, &c. It is also excellently equipped for machine work. Its shop is operated by motors. One of its products is the Springer patent mine pump, which has an improved valve mechanism.

The Highland Chemical Products Company has moved its office from the plant at South Connellsville, Pa., to the First National Bank, Connellsville, Pa., which is centrally located and where the concern can conduct its business to better advantage. J. L. Schick, manager, has charge of the company's affairs there. It makes an anticorrosive coating for iron and steel pipe used in mines, &c.

Portable Autogenous Welding Equipment

The Oxi-Carbi Company's Latest Apparatus

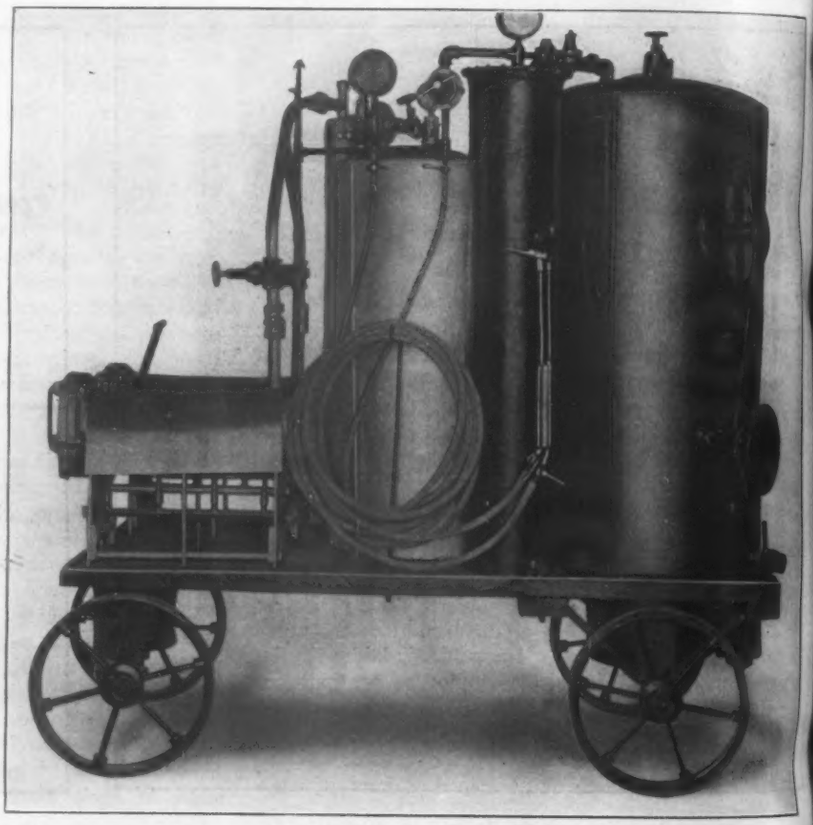
In its latest type of portable oxy-acetylene welding apparatus, herewith illustrated, the Oxi-Carbi Company, New Haven, Conn., claims to have perfected a most satisfactory process of generating the acetylene gas by which a high quality is obtained. With the peculiar construction of the generating chamber, it is possible to entirely slack the carbide without obtaining a highly discolored sludge, which is the common fault of the water feed generator from overheating in generating the gas. Among its features of safety is the impossibility of opening the carbide chamber without dropping the chain. This automatically closes the feed water valve, so that no water can enter the chamber and generate gas should there be carbide left in the chamber. This company builds both the water feed and the carbide feed generators and states that it is unable to distinguish any difference in the quality of the two gases. The generators are built of extra heavy steel and as all joints in it are welded this makes it impossible for any part of the generator to be melted, even if it is placed carelessly near a hot furnace.

As this generator is entirely automatic, and there is no odor of escaping gas (even in a close room with no connection with the open air) from the safety valve, there is declared to be absolutely no danger of an explosion from the mixture of gas and air under any of these conditions. In moving the machine the feed water valve may be closed and no water admitted to the carbide chamber; also if the machine is carelessly overturned very little water could reach the carbide.

The oxygen is generated under pressure, but as this company has used this process for several years and believes that it has had all the accidents which could arise from this source of generation, it firmly believes that a generator of this kind is as safe, or safer, than a steam boiler. If ordinary care is used in preventing organic matter from becoming mixed with the chemicals, there is very little danger of an explosion from this source. An explosion might occur if the valve between the retort and storage tank was closed, and no provision made for escape of the gas in the way of a safety valve. An ordinary safety valve is of little use, for in blowing the oxygen carries considerable chlorine, which will cut a channel in the valve seat, making it worthless after it has blown a few times. It is then likely to be removed and a plug put in its place, which ends the safety appliance on that machine. The Oxi-Carbi Company has perfected a safety disk which bursts with undue pressure and can be quickly renewed, and a tight connection may be always maintained and still be safe.

For those, however, who are prejudiced against this type of machine, the company is always ready to supply the compressor type of oxygen generator and the purchaser may carry the oxygen to the work in tanks if he so chooses. The same can be done with acetylene, but it is not often that the consumption of gas warrants so expensive an installation and the cost would be prohibitive. The greater the distance from the source of supply of compressed gases the more expensive these gases become, while with a machine that generates the gases as they are required the builder of this quipment argues that many valuable pieces may be saved with very little cost and often work can be done without dismounting. Another argument made is that it does not cost as much to move a keg of potash and a drum of carbide as it does to move six tanks of gas, and the gas does not cost as much as when it is procured from compressing plants owned by others.

In the generation of oxygen with this machine all guesswork is eliminated by a double gauge arrangement, through which it may be determined at any moment whether the retort in use has exhausted its gas or not. This saves much useless heating of the retort, which is always done when no way is provided to determine the condition, or else the heat is shut off before it is out, causing a waste either way. This is an exclusive feature of this apparatus, as well as providing special alloy valves on the storage tank by which oxygen may be retained in the tank without fear of its leaking out over night.



The Latest Portable Oxy-Acetylene Welding Outfit, Built by the Oxi-Carbi Company, New Haven, Conn.

Brown & Co., Inc., operating the Wayne Iron & Steel Works, Pittsburgh, are making some improvements to their plant, and have placed an order with N. C. Davison & Co., Keenan Building, Pittsburgh, for a 250-hp. steam engine to operate shears. Davison & Co. have also made a sale of a duplex Yeoman pump for the Weisser-Lowe Building on Liberty street, Pittsburgh; a deep well pump for the Nixon Hotel, Butler, Pa., and a 5-ton refrigerating plant for the Hotel Lowry, Butler.

New Cutler-Hammer Alternating Current Crane Controllers

In steel and iron industrial plants traveling cranes perform important service. The electric motor has helped to make possible the speed, flexibility and convenient operation now obtained, and until recently the direct current motor was used almost exclusively and left little to be desired. However, the introduction of alternating current systems in all parts of the country has often made it desirable to use alternating current motors providing satisfactory service could be assured.

This has led the Cutler-Hammer Mfg. Company, Milwaukee, Wis., to develop a new line of alternating current crane controllers, two of which are illustrated herewith, front and rear views of each model being given. Fig. 1 is the radial arm type of controller, while Fig. 2 shows the self-contained type arranged for rope operation. In the design and construction of these controllers, an effort has been made to secure a model capable of giving long and highly efficient service. The contact segments are arranged to secure accurate control and speed adjustment, and can be easily renewed or interchanged without interfering with the connections on the back of the face plate.

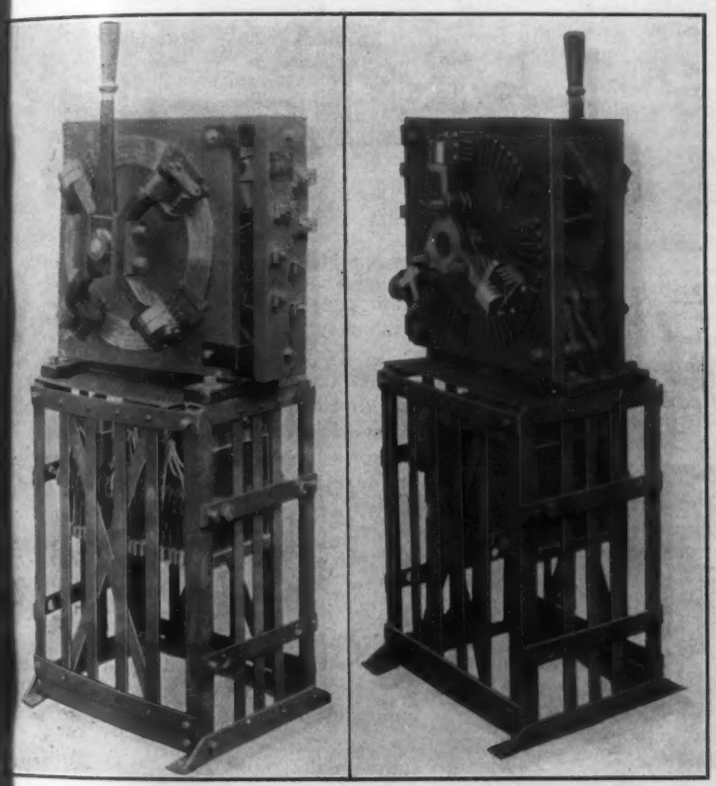


Fig. 1.—Front and Rear Views of the Radial-Arm Alternating Current Controller Made by the Cutler-Hammer Mfg. Company, Milwaukee, Wis.

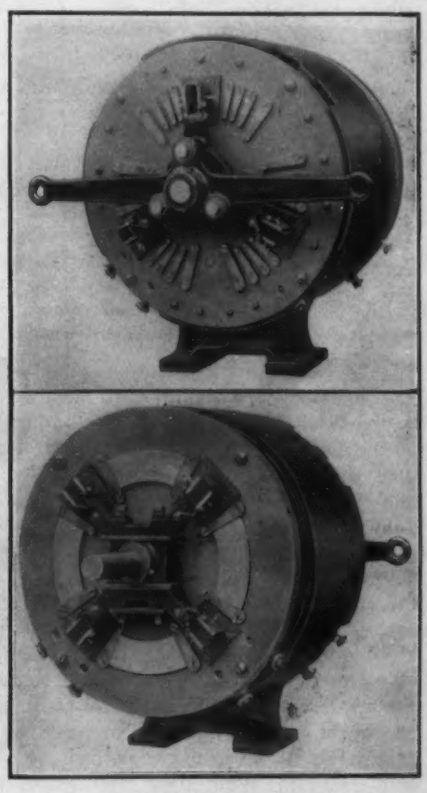


Fig. 2.—Front and Rear Views of the Self-Contained Type of Crane Controller.

The appearance of these new controllers is similar to that of the direct current face plate controllers made by the same company. The fronts are Vermont slate, carefully inspected and tested for traces of iron. The larger or radial-arm type shown in Fig. 1 has the resistance grid mounted below the face plate, and is operated by a straight motion of the lever which permits the installation and easy operation of several controllers side by side. The structural steel frame combines strength and lightness, and permits of easy access to the internal parts of the controller. The smaller controller, Fig. 2, is self-contained, having a unit type resistance, mounted on the rear of the face plate. This is adapted for use with small cranes, and can be operated from the floor by ropes. For reducing the wear on the brake mechanism single phase and polyphase brake solenoids which also cut down the starting current have been developed, and form a part of the regular equipment of both types.

In addition to these two styles, a special form of controller for use with squirrel cage induction motors has been designed, although this type of motor is seldom employed for crane operation.

Chairman Gary on the Iron Trade Situation

In an interview given to the newspapers on his return from Europe last week, Chairman E. H. Gary of the United States Steel Corporation said of conditions in the iron trade:

"Dullness is naturally to be expected at this time of year, but I think iron and steel manufacturers have no reason to complain of their business. You must remember that for six months previous to March 1 we were booking almost 50 per cent. more per month than our total capacity, with the result that orders accumulated rapidly. Such a condition of things naturally leads to a falling off of new orders, and we have an opportunity to work off the accumulation to some extent. Nevertheless we still have on the books from three and one-half to four months' business, and if we get only half our capacity per day in new orders it will be a long time before we have much right to complain. The reason why at times an apparently large percentage of business falls off is that business is not entirely regular in some lines. But I am convinced that there will be no trouble whatever threatened in industrial conditions in America unless it is as a result of uncertainty caused by political agitation. What we need is more stability in the United States.

"There is a noticeable tendency on the part of the steel people of this country and those of foreign countries to co-operate. I should like to explain that this co-operation does not mean a definite agreement with reference to prices nor with reference to a division of business or anything of that sort, but such friendly co-operation as results in an interchange of information regarding business."

The Iron Ore Resources of the World*

Some of the Factors Determining Availability—Vast Stores That Will Be Drawn Upon in Countries Now in the Background

BY L. DE LAUNAY.

The very interesting question before the present Geological Congress is an indication of a new condition of affairs which will command more attention as the years pass. In the last quarter of a century industrial civilization has, with marvellous rapidity, taken possession of the entire earth, and has gradually spread over and united even the most inaccessible lands with bands of iron. There has thus been a tendency toward the establishment of a kind of general equilibrium, which will undoubtedly become characteristic of the future; an equilibrium in which each type of production will tend more and more to become centralized in the regions where conditions are most favorable to its development and also where it is largely consumed.

It is natural, therefore, that man, as the owner of a property recently acquired, should make an inventory of its value, with a general survey of the localities which under the most favorable circumstances may furnish him with this or that material whose need he anticipates.

An Economic as Well as Geologic Question

It is with this conception that we shall consider the question of the source of the iron ore which will be required for the future iron industry. For, if we view the problem from only one standpoint, if we ask only whence mankind in the most distant ages can derive its iron there is nothing difficult about the answer. The entire crust of the earth contains an average of 4.70 per cent of iron. A most elementary selection easily raises this amount to 10 per cent. in the case of almost any rock; and there is no techincal impossibility connected with the extraction of the iron, although no one would dream of calling it ore.

With iron, as with every other metallic substance, the question of ore is purely conventional and depends as much upon economic conditions as on geologic facts. To be an iron ore it must be profitably workable under the conditions surrounding it where it occurs. These conditions vary at different times with means of transportation, local demand, metallurgical processes, &c. Since each of these factors is susceptible of modification, with a rapidily constantly increasing with scientific and industrial development, it is not only a delicate matter but economically dangerous to predict far ahead, and by a consideration of the statistics of the past half century to attempt to establish conclusions as to future requirements. It may serve a good purpose, therefore, to say a few words as a preface to approximate deductions from the great international investigation so admirably conceived and carried out by the Bureau of the Congress [which resulted in the publication of the two volumes, with atlas, entitled, "The Iron Ore Resources of the World."—EDITOR].

"Known" and "Potential" Supplies

What do we find if we limit ourselves to the figures summarily presented by Mr. Sjögren? They give us actually in reserve about 10,000,000,000 tons of iron, contained in 22,000,000,000 tons of ore; they also show five to six times as much in "potential reserves." If the production of pig iron continues to increase at its present rate we have in sight an estimated iron ore supply for 60 years. But are we to understand from this statement that, in these 60 years, we shall begin by the exhaustion of the known ores and pass from them to the more questionable supplies embraced under the heading of "potential" ores? Certainly not; because in assuming that the production must continue to increase at the present rate we should be compelled to attach some importance to ores not known to-day. Furthermore, it is probable that we should be led to discard important supplies of ore now counted as reserves.

In order to realize the changes likely to occur, it is necessary to consider successively some of the principal factors, such as : 1, Metallurgical treatment; 2, Changes in methods of transportation; 3, Shifting of commercial centers and the creation of new ones.

I. Possible Metallurgical Improvements

In spite of our constant experience with the evolution of every industry we have a tendency to judge the future by the present, and to imagine that the needs of our descendants will be identical with our own. The basis of the social scheme, which we call the patriarchal, consists in storing up for future use that class of riches which we suppose will always be indispensable because they are so to-day. It is, however, unnecessary to go very far back in the metallurgical history of any metal—iron, for example—to discover that the ore so much sought for to-day was once despised. Nor do we realize that ores formerly esteemed are to-day of ordinary value. It was possible, for instance, to attach great importance to easy fusibility when only rudimentary means of fusion were available; and purity may have been indispensable when it was impossible to eliminate harmful elements like phosphorus.

Evidently pure high grade ores may always be worked by amateurs; but one need not be a great prophet to understand that many kinds of ores, to-day neglected, may be valuable to-morrow, either because of better methods of treatment or because they may be mixed with ores more recently discovered or made valuable. Thus we see France becoming again, as it was many hundreds of years ago, an important producer of gold through the recent advances in gold metallurgy. Likewise, in the great iron ore basin of Lorraine the enormous development of the siliceous ores possible in connection with the calcareous ores of the basin of Briey has hardly been realized and certainly not taken into account in the calculations cited. In other places we shall learn how to handle large bodies of ore now worthless because of the presence of arsenic, titanium, &c. And among the coming revolutions which can be foreseen to-day we cannot overlook the changes which will come in the metallurgy of iron by the more general introduction of electirc smelting. It can hardly be doubted that the direct treatment of iron ores by electricity, which as yet seems Utopian, will be accomplished, and that it will bring about a change in the character of the ores used, as well as the location and distribution of iron and steel plants. Just as the principal gold production of the world is furnished by the low-grade

* A paper read before the International Congress of Geologists, Stockholm, Sweden, August 22, 1910. Translated from the French by Horace V. Winchell.

but uniform and abundant ores of the Transvaal, so it may happen, through one cause or another, that our descendants may utilize for the manufacture of iron masses of rock far too low in iron content for us to dream of considering them as ore to-day.

II. Changes in Means of Communication

For a substance of as little value as iron ore for a material whose selling price at the mine is often, even in a region of industrial activity, but a few cents, the expense of transportation becomes of prime importance, and in many cases determines the availability of the ore. It is not enough to have ore and good ore; there must be within an area of moderate diameter a grouping, or a trinity of ore, fuel and consumer. The problem of exploitability involves three quantities; of these the consumer is the most fixed and less easily influenced factor, for to him must be brought as cheaply as possible the iron produced by the association of the ore and the fuel. In early days ores were reduced where they were found, there being enough wood fuel at hand for immediate use. Later years have seen the concentration of immense plants, and those ores have become supreme which occur in an industrial, coal-producing region or near water transportation the ideal method of economical transportation, involving, however, the problem of return freight. If electrical metallurgy becomes general it may to a certain extent alter the distribution and location of iron furnaces, establishing them near the water powers which produce the white coal, and creating metallurgical and mining centers quite different from those previously in existence.

Aside from these considerations, the increasing development of railroads is constantly bringing within reach mineral localities which at the outset seemed to be entirely too remote to be taken into account. Often the railroads are induced to build by the ore deposits themselves. This happened in the case of the vast deposits of Gellivare and Kiirunavaara. It will also soon be true of our own fine Algerian deposit at Djebel Quenza. In other instances the railroads profit by the deposits without having been built exclusively for their exploitation. Look, for example, at the railroads which penetrate into China, which traverse Africa and are multiplying in Brazil. At Chansi, at Katanga and at Minas Geraes, the iron ores which were known, but not deemed of any importance for immediate use, may come into the field of exploitation much sooner than is generally believed.

III. Commercial Revolutions and New Centers of Manufacture

The demand for iron has been hitherto confined to a few localities. In the successive stages of civilization, as in legendary lore, the age of iron always comes last, after the age of gold, of copper and of other metals such as lead, tin, and zinc. Widespread demand for iron came with the period of extensive railroad building and the substitution of iron for wood in architectural construction, and with the period of those great and expensive armaments which are deemed, perhaps rightly, a surety for the preservation of peace by making war ruinously expensive. Thus again, as we remarked at the beginning, the location of great coal fields has influenced the selection of iron ore deposits for exploitation. In this respect the results of the splendid investigation made by this Congress are strikingly characteristic. Can it be imagined, for instance, that there is really almost as much iron ore in the small continent of Europe as in America, and that these two continents are almost the only ones which contain important deposits of iron ore? In America, even, can we believe that all the iron ore is really located in the East, to the exclusion of those metalliferous zones of the West so important and so predominant in the production of the other and more valuable ores? The reason for this apparent anomaly lies solely in the fact that the search for these ores has been prosecuted most vigorously in those places where the ores are needed; while as to those localities where exploitation seems impossible or unprofitable we have only a brief approximate estimate without definite figures. It is for this same reason, that in the table of summaries given at the end of the work referred to above, the average iron content of the European ore is only 37 per cent., as against 52 per cent. for America. The European ores are not of lower grade than those of America, but they are on the average exploitable with lower iron content.

Industrial conditions have been such hitherto that the world's production of iron has as a matter of fact been furnished by a few countries, and in these countries by some particularly favored centers. It is the location of the latter which has influenced the practical choice of the iron ore deposits to be worked; and these as a result have been the subjects of estimates based upon the more extensive information available. A Bilbao situated upon the coast of Siberia would remain neglected. We have hardly begun to think seriously of iron ores on the coast of China or the Indian Ocean.

Centralization has gone so far and metallurgical establishments already in existence have become, by reason of their powerful commercial and financial organization, so deeply rooted in their original locations that it is possible for them, contrary to the logic of the situation, to perpetuate themselves and carry on their operations in the face of newly arisen conditions favoring location elsewhere.

This condition of affairs and the present day necessity for working on a large scale in order to realize a profit, often result in a surplus of production at many plants in the countries previously mentioned, compelling a search for new markets at great distances. Herein arises the great difficulties which is encountered in the development of new metallurgical centers even under the most favorable conditions, such as the plant of Wakamatsu in Japan, or that of Hankow in China. Asia also contains, at Kouznetsk in Siberia, iron ore deposits associated with fuel, which cannot possibly be utilized on a large scale in spite of their extent and enormous value that they would have if located elsewhere than in Siberia.

It would be easy to multiply examples of this sort. It is sufficient, however, to draw the conclusion that the world's production of iron ore will appear in the near future under a different aspect from that which it presents to-day. We may say, without hesitation, that if we consider the matter a quarter of a century hence, the problem will be governed on the whole less by geological conditions which guarantee the existence here or there of rich ores, than by a combination of local conditions, powerful enough to permit competition with the plants of Europe or the United States. In fact, this change may come about much more rapidly than is generally expected. The old industrial countries will have constantly less need for extending their network of railroads, while in the new countries will be seen an inverse evolution. As soon as the unnatural influences resulting from the force of accumulated capital cease to have a predominant influence, there will be developed in the natural course of events, in Asia, in China, in India, then in South America, then in South Africa, and so on, metallurgical centers which will progressively extend the radius of their activities by discarding ancient methods and having recourse to the ores favorably located from their own point of view and not from ours.

If we consider also the advantage of cheaper labor in Asiatic countries, and the constantly increasing de-

mand which will arise in these ancient countries where superabundant capital loses part of its purchasing power we may expect rapid development of ores as well as blast furnaces. Wherever iron ore resources exist, which on the basis of present production is sufficient for hundreds or thousands of years, it is natural to increase production in every possible way. It is actually possible that within a half a century instead of a scarcity of iron ore in Europe, as is now predicted, there may be a very large amount for which there is no demand.

Probable New Iron Ore Development

Before reaching this comparatively remote period, we may expect that for several years at least, the present conditions of affairs will continue on an increasing scale. We may thus begin by largely exhausting the reserves actually in sight. Of these some appear to be limited; others, on the contrary, are of considerable importance. In rich iron ores of more than 60 per cent. Northern Sweden holds the first place. In accordance with the geological law, which I have had occasion to emphasize elsewhere, we may compare it with other countries surrounded by analogous conditions in relation to a succession of geological folds, and notably with North America. It is only recently that there have been discovered the iron ores of Lake Superior, known to contain 2,000,000,000 tons of metallic iron, and with 36,000,000,000 tons possible. When Canada is explored, there also, without doubt, will be made important discoveries. Already under slightly different conditions Newfoundland appears to have almost 2,000,000,000 tons of iron ore in the form of enormous bodies containing 65 per cent.; and the same kinds of ore are equally abundant in the Adirondacks. The Southern hemisphere, where are found homologous tectonic conditions, will be found equally rich in high grade ores. We have already mentioned Minas Geraes which must soon be taken into account.

In regard to ores of lower grade France, with its supplies in Lorraine, Normandy, and Algeria, may take the most prominent position. The resources of the Lorraine basin in that portion still belonging to France already place us in the first rank, and this supremacy will become more and more marked on the part of France, and especially also Germany, through the possession of greater ore reserves than are found in other countries. There remain in the Lorraine basin entire strata of ores of still lower grade which have been almost entirely neglected in its development. In Algeria, likewise, the two principal deposits—those of Quenza and Bou-Kadra, of which mention has hitherto been made, are far from being the only ones which may add to its production when means of transportation have been provided. France will thus be constantly callel upon to export more iron, either in the form of ore, or, to the extent permitted by its comparative poverty in coal, in the condition of finished products.

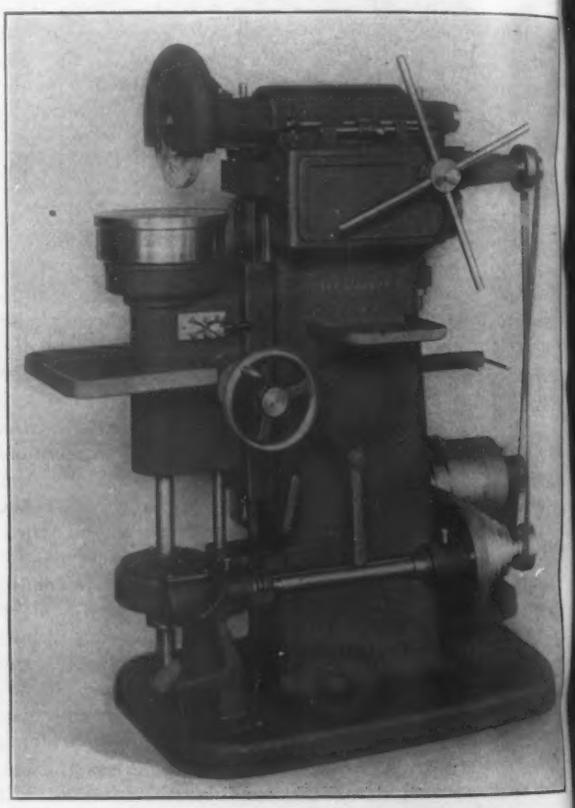
Coal Briquetting in the United States

According to a report prepared by E. W. Parker and published by the United States Geological Survey, Washington, D. C., more briquets were made in the United States in 1909 than in any preceding year. Sixteen briquetting plants were in operation, but five of them were only working experimentally and two of these were making briquets from peat. The total product in 1909 was 139,661 net tons, valued at $452,697, an increase over the output of 1908 of 49,303 tons in quantity and of $129,640 in value.

This output is insignificant compared with that of Germany, where 18,000,000 tons of briquets are made every year, but it shows that the briquet industry is at last getting started in the United States. The conditions in Germany, however, are very favorable to the success of the industry. Labor is cheaper, coal is dearer, and the wasteful beehive coke oven is unknown, for coal is coked in retort ovens supplied with by-product recovery equipment, which yields a large output of coal-tar pitch that is available for use as binding material for making briquets. In the United States the briquet industry is held back by the large supply of cheap natural fuel, by the high cost of labor and by attempts to exploit secret processes, for which extravagant claims are made, but which have failed to make good.

The Bay State Piston Ring Grinder

The piston ring and surface grinder shown in the illustration has been brought out by the Bay State



New Piston Ring Grinder, Built by the Bay State Grinder Company, Worcester, Mass.

Grinder Company, 186 Union street, Worcester, Mass., to meet the exacting requirements of the builders of gas engines, as well as for general surface grinding. It contains several interesting features, among them a pedal clutch operating mechanism, which enables the operator to start and stop the rotation of the chuck with his foot, giving him the free use of his hands for feeding the work to the machine.

A Walker magnetic chuck is used, attached to a vertical spindle, which is driven by spiral gears from the cone shaft, the gears running in an oil bath. The head, which carries the wheel, has three feeds for roughing and finishing, and is adjustable for concave and convex grinding, a necessary function for sharpening saws and cutters. A hand feed is furnished, and a special crank feed specially adapted for piston ring work can be provided. Other accessories are a vertical spindle for use with cup wheel; a valve face grinding attachment, with draw-in chuck, and an attachment for grinding single cams. The spindles and shafts are ground and have adjustable bushings protected from dust. The design embodies ample weight and stiffness.

Russian Labor Legislation

Workingmen's Compensations and Pensions

Consul-General John H. Snodgrass, Moscow, furnishes the following statement to the Bureau of Manufactures, Department of Commerce and Labor:

Considerable influence has been manifested before the Duma to alter the workingmen's compensation act which became a law January 1, 1904, it appearing to be unsatisfactory to both employer and employee. The law defines the employers' liability for accidents, and in comparison with former measures is said to be far more comprehensive and stringent, it being estalished upon the basis that the compensation shall not exceed two-thirds of the earnings in case of a total loss of earning capacity.

Compensations and pensions are granted upon the earnings for 260 days where work is carried on during the entire year, while in manufactories where there is a cessation of labor for part of the year the reckoning is made on the earnings of the actual working days existing in such shops plus the average wage of an ordinary laborer for the difference between the 260 days and the actual time employed in the particular branch of industry. If the employee receives, in addition to his salary, free lodging and board, 20 per cent. is added to the amount of pension for lodging and the actual cost of board.

Compensation for accidents is awarded as follows: For temporary disablement, one-half of the normal wage during the time the workman is prevented from laboring. For partial disablement, compensation sufficient to bring the workman's income up to two-thirds of his normal wage must be paid. For complete disablement, a pension of two-thirds of the normal wage is required.

In case of death resulting within two years from the date of accident, one-third of the normal wage must be paid to the widow for life and one-sixth to each child up to 15 years of age. In no case, however, is the compensation to exceed two-thirds of the wage earned. Dependent parents, brothers, and sisters must also receive compensation, but never so that two-thirds of the wage is exceeded. The employer is also obliged to contribute for funeral expenses $15.45 for adults and for minors from 15 to 17 years, inclusive, and $7.73 for minors from 12 to 15 years of age. In addition to the above-named compensation, the employer is obliged to refund the employee an amount covering any expenditure for medical treatment, unless the latter received such from the employer.

A widow who concludes a marriage is entitled to a lump-sum compensation equivalent to a three-fold yearly pension. In the event of the death of both parents by accident, the children receive the combined pensions.

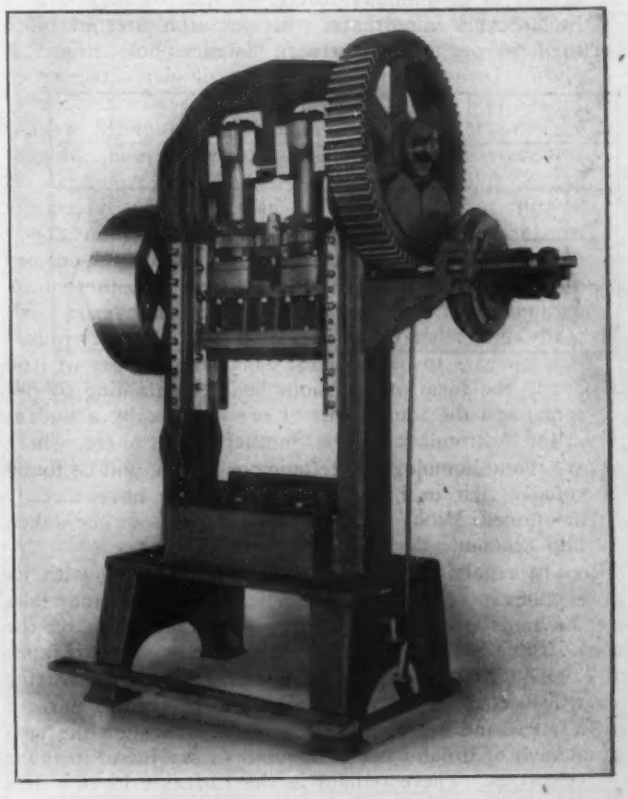
As a result of the new law, it is said that the rates have been raised most appreciably by the insurance companies, and, in some instances, the latter have refused to accept the risk at any normal premium, so that many manufacturers are assuming the risk themselves.

The employers are objecting to the measure for the reason that they claim it is too general; that the working men receive sympathy from the courts; that there is a lack of uniformity in the courts' decisions; that it is an unjust burden upon the employer with no real benefits to the employee; that the rates are abnormal, and that it bears unequally upon the small employer. The workingmen state that too few are protected; that the pensions are too small, and that older and married men are restricted.

Through the courtesy of the Sawyer Belting Company, Cleveland, Ohio, we have received a copy of the new standard stitched canvas belting list which is to take effect October 1. This list runs from 1 to 48 in. in width. Taking the 12-in. width, the new price on 4-ply is $1.20; 5-ply, $1.50; 6-ply, $1.80; 8-ply, $2.40; 10-ply, $3. On all belts 12-in. wide or under, 3 ft. is the minimum charge for a splice on endless belts. On belts over 12-in. wide, the charge is to be the equivalent of three times the width of the belt.

A Special Walsh Press

A recent addition to the line of power presses made by the Walsh Press & Die Company, 4709 West Kinzie street, Chicago, Ill., is illustrated herewith. This new machine is a straight-sided, double crank press and, like the double crank power press illustrated in *The Iron Age*, August 11, 1910, was designed to meet the requirements of one of the firm's customers, the particular work for which it will be used being the production of horseshoe magnets.



A New Straight-Sided Double Crank Power Press Built by the Walsh Press & Die Company, Chicago, Ill.

The machine is driven by a friction clutch fitted with a band brake on its rim and can be stopped at any angle of its stroke by simply removing the foot from the treadle, which controls absolutely the transmission of power to the slide. Pressure on the treadle causes the friction clutch to engage and the band brake to release, and when the treadle is released the compression spring shown in the engraving disengages the clutch. This spring is mounted on a rod which is connected with the band brake and, disengaging the clutch, compresses the brake and stops the machine instantly.

The population of Cleveland, Ohio, in 1910, which has just been published by the Census Bureau, is 560,663 as against 381,768 in 1900, a gain of 46.9 per cent. Cleveland thus ranks above Pittsburgh, which has 533,905, though below St. Louis and Boston. Cleveland has now nearly 200,000 greater population than Cincinnati, the latter at 364,463, having gained 58,561 since 1900.

Allen-Bradley Rheostats

The Use of Compressible Resistance in the American Electric Fuse Company's Line

Current controlling devices have long been designed to secure resistance through banks of coils, grids or ribbons and reduce it by successive steps. Varying the resistance in this way is said to have disadvantages both in theory and practice. A starting device built on this principle draws current from the line in a peaked wave, the altitude of which varies from 75 to 150 per cent. of the full load current, according to the movement of the controlling lever and the acceleration of the motor. Fig. 1 shows two curves of this character, No. 1 being that of the Allen-Bradley induction motor starter, made by the American Electric Fuse Company, Muskegon, Mich., and No. 2 that of an ordinary auto-transformer starter. The peaks in the latter curve represent wide potential differences between the contacts of the face plates. These differences greatly increase the tendency to arc and flash and as a result segments, contacts and brushes are burnt out frequently.

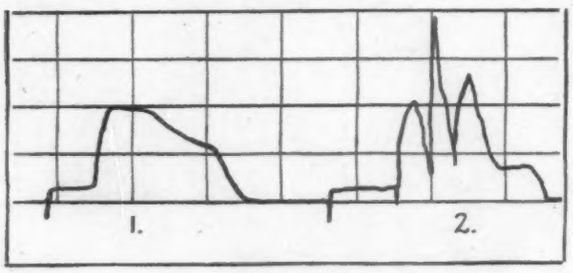


Fig. 1.—Starting Curves of (1) an Allen-Bradley Induction Starter and (2) an Ordinary Transformer Starter.

The Allen-Bradley rheostats operate on an entirely different principle. An indestructible resistance is secured by making use of the imperfect electrical contact between graphite disks, shown in Fig. 2, which are stacked, as shown in Fig. 3, within an insulated metal tube. The latter is mounted as shown in the central part of Fig. 4, which is a side view of a compressible resistor motor starter. These disks are constantly in more or less intimate contact with one another. The more perfect the contact the less the resistance, and by compressing the disks the resistance is decreased at will. The starting lever of these rheostats operates a spring which compresses the disks gradually and evenly with the result that the initial starting current is only about 25 per cent. of the full load and increases gradually as the lever is moved across the contact plate and the resistance reduced.

Fig. 2.—Graphite Disks Used in the Allen-Bradley Rheostats.

By referring to the first curve of Fig. 1, it will be seen that this starting current rises gradually and quite uniformly to a maximum slightly above the full load value and then recedes as the motor comes to full speed to the normal level maintained by the motor while running. This results in the elimination of peaks and the motor is accelerated evenly and smoothly. The low starting current and the even decrease of resistance during the process of bringing the motor up to speed is said to eliminate all arcing or burning at the short circuited segment on account of the slight difference of potential at the point of minimum resistance, and consequently there are no burnt-out parts to be replaced.

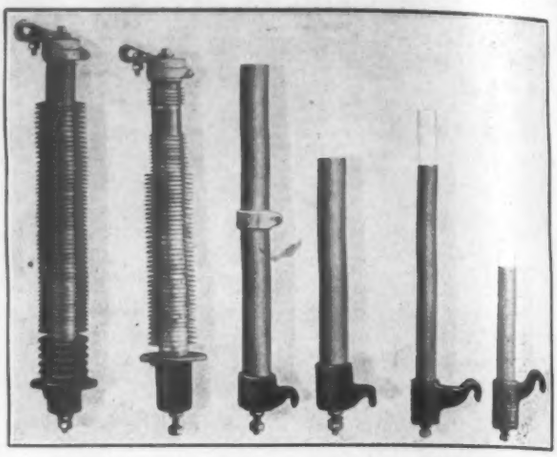


Fig. 3.—Allen-Bradley Resistance Tubes.

These rheostats are regarded as much simpler than those of the segment type, and by using the compressible resistors, the same result is attained as would be secured by increasing the segments and banks of resistance to an infinite number. This does away with a complicated mass of wires, coils and grids and substitutes a single small compact tube containing all the resistance elements and at the same time reduces the weight due to this reduction in the number of parts. Motor starters of the segment type are not only rather complicated, but many of the parts are difficult to reach because of this complexity. This is not experienced with one of the Allen-Bradley type, as every part is in full view and easily accessible.

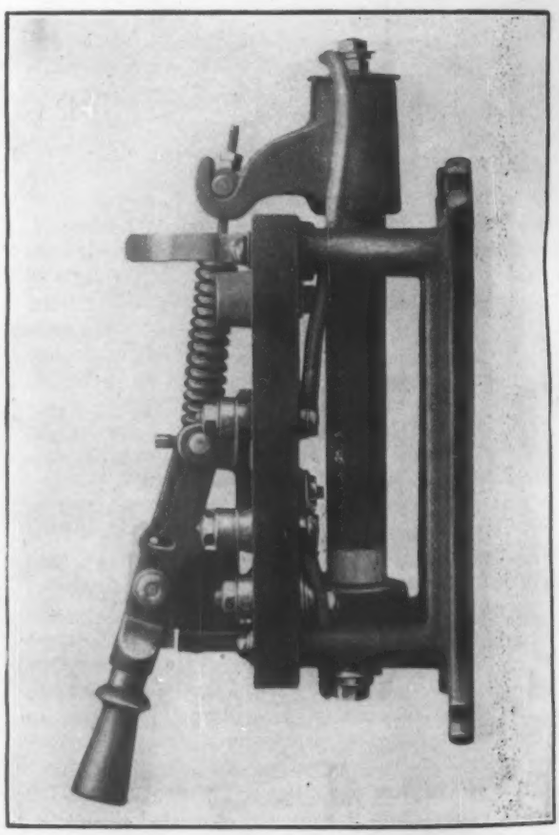


Fig. 4.—Side View of an Allen-Bradley Compressible Resistor Motor Starter Made by the American Electric Fuse Company, Muskegon, Mich.

The Grant Adjustable Boring Tool Holder

A Device Especially Useful in the Tool Room

For use principally on milling machines to produce accurate jig and die work, form tools and light experimental and machine work, the Grant Mfg. & Machine Company, Bridgeport, Conn., has brought out the adjustable boring tool holder shown in Fig. 1. The holder is fitted with a No. 7 Brown & Sharpe taper shank and is adapted to boring all sizes of holes up to 2 in. in diameter. Tools of various sizes and lengths may be inserted and held with the set screws. Larger and smaller sized holders having shanks of any required taper are also furnished. The smaller size with a No. 4 Brown & Sharpe taper shank, used in connection with a high speed attachment, is declared to be the most economical for very small jig work and is adapted to boring holes up to about ½-in. diameter.

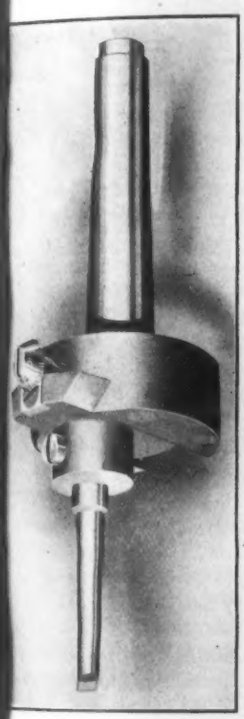


Fig. 1.—An Adjustable Boring Tool Holder, Made by the Grant Mfg. & Machine Company, Bridgeport, Conn.

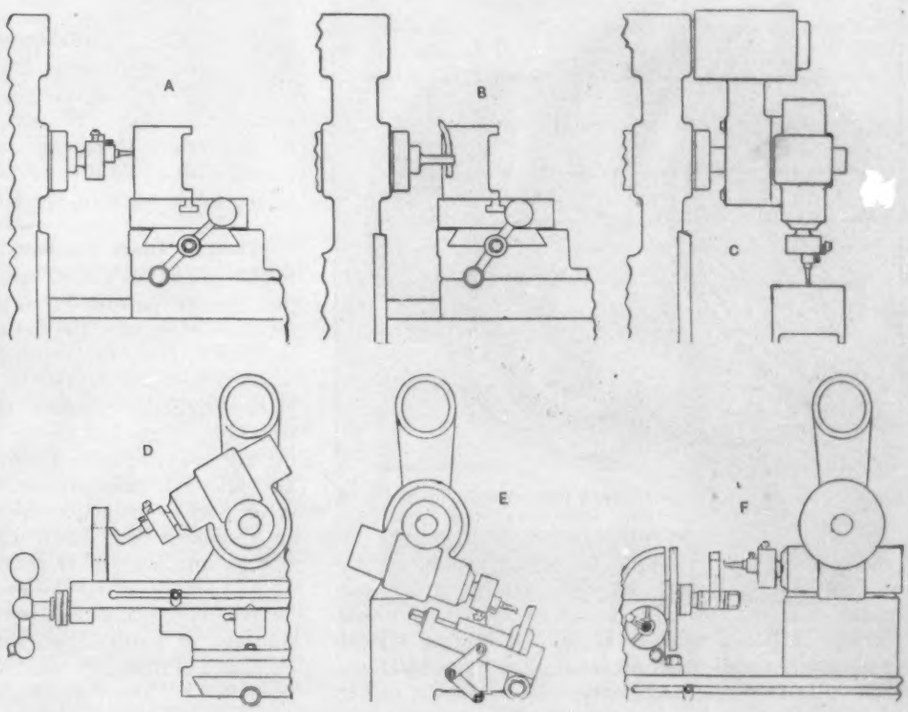


Fig. 2.—Some Typical Uses of the Grant Adjustable Boring Tool Holder.

Fig. 2 shows some of the uses to which the holder may be put. At A the tool is shown at work boring the bushing holes in a drill jig. The jig after machining is clamped on the platen of a milling machine and the bushing holes are then drilled slightly smaller than the required size with a drill held by a chuck in the milling machine spindle. The spacing between centers is made by turning the lead and vertical feed screws and noting the reading on the graduated dials, or vernier, if the machine is so equipped. After all the holes are drilled the boring tool holder is put in the spindle of the machine and the holes are bored to finished size. The spacing between centers of holes is made as before and their diameter is exactly determined by turning the adjusting screw on the boring tool holder which is graduated to read in thousandths of an inch. Turning this screw positively moves the slide carrying the boring tool in or out toward or away from the center of the hole. The slide has a movement of about 1 in. and is rigidly fitted in the head of the holder.

B, Fig. 2, suggests means of getting the exact location for the first hole. A true running plug is placed in the spindle and revolves while a slip of tissue paper is held between the plug and the end of the work. The work is then gradually moved toward the work until the latter begins to grip the paper and pull it from the fingers. The saddle screw is then turned drawing the work out of the way of the plug. The platen is then moved toward the center of the spindle a distance equal to one-half the diameter of the plug plus the thickness of the paper. This brings the center of the spindle in line with the end of the work. The distance to the center of the first hole can then be accurately spaced. In the same way a location from the top of the platen, or other working points may be obtained.

C, Fig 2, shows the adjustable tool holder held in a vertical attachment at work on the top side of a jig. D shows the tool held in a vertical attachment boring an elliptical hole in a die. This is accomplished by setting the vertical attachment at the required angle to produce the necessary difference between the major and minor axes of the ellipse. The hole is bored by moving the platen longitudinally.

E, Fig. 5, shows the tool generating a form tool that can be ground without changing its shape. The tool blank after being roughed out is held in the universal vise swung up to an angle of about 22 degrees to give the proper clearance. The vertical attachment is then swung to the same angle so that the point of the tool while revolving describes circles in planes parallel to the base of the tool blank. The tool is then passed through the blank by moving the platen longitudinally and thus circular forms of any required diameter or depth may be generated by moving the saddle to get the proper location. Forms may be sunk in to any required depth by using the vertical feed screw. Any additional milling may be done at the same holding of the work. In making a concave formed tool this method saves making a master concave and convex tool, as the concave tool with clearance can be generated direct.

F, Fig. 2, shows the tool at work on a job mounted in the dividing head. Jigs with bushing holes having a circular layout can be bored advantageously in this way by clamping them to a face plate mounted on the dividing head. The combination of the saddle and vertical feed screw with the indexing mechanism

offers facilities for boring holes on any required radius and any number of degrees or any distance apart. Bell crank levers and other light machine parts can be conveniently bored in this way, and many other uses of the tool will readily suggest themselves from the few examples given in the foregoing. Its adaptability to the general run of toolroom and machine shop work is extensive.

The Sturtevant Turbo-Undergrate Blower

The new type of turbo-undergrate blower, built by the B. F. Sturtevant Company, Hyde Park, Mass., is designed especially for electric light and railroad

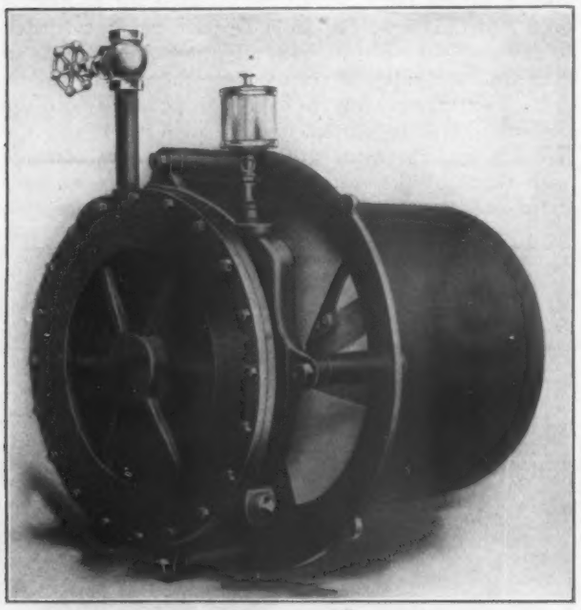


Fig. 1.—The New Turbo-Undergrate Blower, Built by the B. F. Sturtevant Company, Hyde Park, Mass.

power plants which need increased draft during the peak of their load; for power stations that have outgrown their stack capacity and need 25 to 50 per cent. increase in boiler horsepower and for heating systems in hotels, department stores, and other large buildings. The outfit is simple and strong and, as shown in Fig. 1, consists of a single-stage impulse steam turbine directly connected to a propeller type fan. The bucket wheel of the turbine, which may be seen in Fig. 2, is a solid steel forging, carefully machined, the steam buckets being milled on the periphery of the bucket wheel. The steam nozzles are of Tobin bronze, held in place by composition draw-up nuts. The construction of the steam case gives accessibility for inserting, removing and cleaning the nozzles. The dust-proof phosphor bronze bearing and thrust washers are furnished with oil cup lubrication.

The built-up fan is of the propeller type, consisting of six polished sheet aluminum blades, rigidly fastened by hard-drawn copper rivets into a bronze hub, which is finished all over to secure the balance necessary in the high rotative speed of the set. The materials insure corrosion resistance as well as mechanical strength. The stationary members consist of cast iron parts.

The blower is practically silent in operation. Being controlled by hand-damper regulation or by regulating valves operated by boiler steam pressure, small attention is required. The exhaust steam from the turbine contains no oil and consequently may be used directly for any work in which low-pressure steam may be utilized, such as in feed water heaters and building heating systems. The blower discharges into the ashpit and secures satisfactory results from coals that would ordinarily cause serious trouble by clinkering. The method of installation is simple. The wall thimble, which forms the anchorage for the set, can be placed with equal ease at the front, back, or side wall of the brick work of the boiler setting.

Theisen Blast Furnace Gas Washer Contracts.—R. D. Wood & Co., Philadelphia, Pa., who control the Theisen patents for this country, have secured a contract from the Bethlehem Steel Company, South Bethlehem, Pa., for a full equipment of five Theisen washers and wet scrubbers for the new blast furnace plant which the company now has in course of construction. This will be the largest Theisen equipment in this country aside from that of the Indiana Steel Company's installation at Gary, Ind. The Pennsylvania Steel Company, Steelton, Pa., is also installing an equipment of Theisen washers for a furnace which will go into blast in December.

To guard against any possibility of a shutdown from shortage of natural gas, the Union Switch & Signal Company, Pittsburgh, has placed an order with Tate, Jones & Co., Inc., Pittsburgh, for equipping all its furnaces, forges, &c., with the Kirkwood auxiliary oil burning system. The change from natural gas to oil can be made almost instantly whenever necessary.

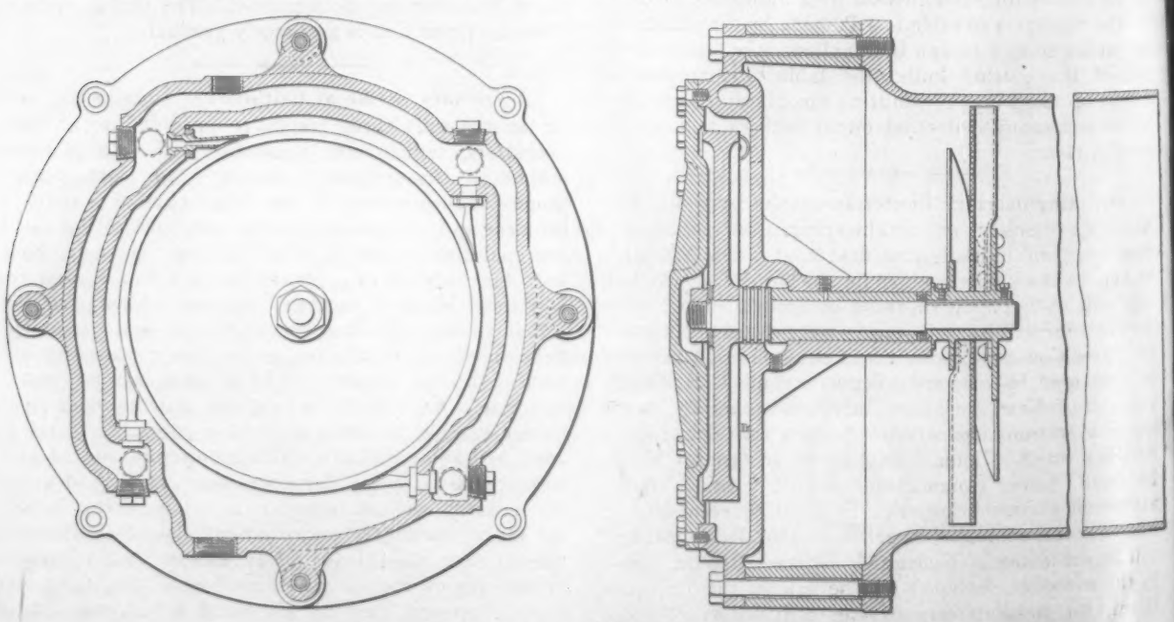
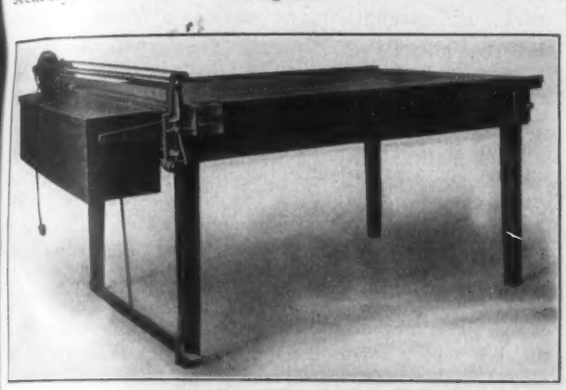


Fig. 2.—End Elevation and Axial Section of the Blower.

The Pease Motor-Driven Blueprint Trimmer

A motor-driven cutting and trimming table arranged with a lightproof box for blueprint paper has recently been placed on the market by the C. F. Pease Company, 167 Adams street, Chicago, Ill., and is illustrated herewith. While this table will be of great convenience and utility to all those making blue prints, which is the special work it is designed for, it can also be used for cutting tracing paper or cloth, detail paper, &c. A parallel clamp operated by a foot treadle is provided to hold the paper, or other material being cut, securely, while the revolving knife is used. The knife



A Motor-Driven Cutting and Trimming Table for Blueprints Made by the C. F. Pease Company, Chicago, Ill.

is motor driven, and is rotated positively by mechanical means, so that it will cut the thinnest paper, or 5 to 10 sheets of heavier paper, at once. The knife is operated in either direction at will, and is stopped or started at any point by a specially designed wrist controlled switch which leaves both hands free to handle the paper or blue prints.

The table is constructed of hardwood with metal trimmings, and can be easily knocked down for shipment. The electrical equipment is complete, and can be connected to any incandescent light socket by the attachment plug furnished. The table top is scored in inches, and figures along the front edge enable any size of sheet to be cut instantly. If desired a sizing diagram can be furnished for the top of the table, which gives at a glance the dimensions and square foot measurement of any tracing or print without calculation. Where the table is to be used for cutting prints after they have been made in an automatic, continuous printing, washing and drying machine, a basket is furnished on the end of the table instead of a lightproof box.

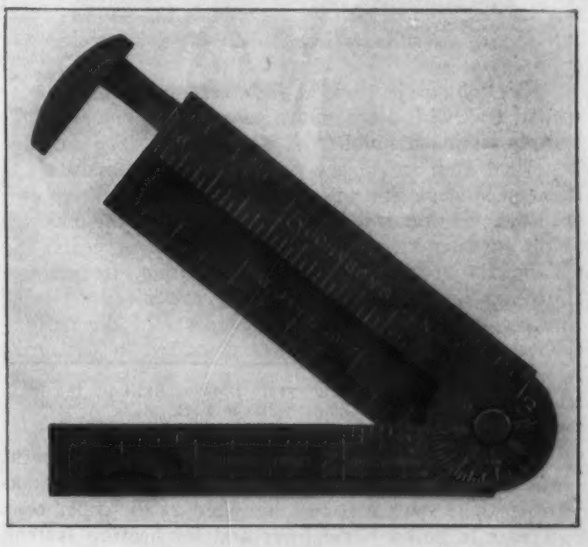
The regular size table is 4 ft. wide by 6 ft. long, but any width up to 8 ft. can be supplied. For hand operation of the cutting knife, the table is furnished in widths up to 42 in. The cutting machinery can be furnished separately if desired, either with or without the parallel clamp.

The Engineering Contractors' Convention.—The American Society of Engineering Contractors has issued the programme of its first annual convention, to be held at the Coliseum, St. Louis, Mo. The proceedings will begin on the morning of September 26, when the usual formalities will occur. In the afternoon a paper on "The Construction of the New Croton Dam" will be presented by Edward Wegmann and J. B. Goldsborough of New York City. On September 27, at the morning session, a paper on "Sewers and Sewer Construction in St. Louis" will be presented by H. R. Fardwell, Sewer Commissioner of St. Louis. In the afternoon session a paper on "Work Preliminary to Road Construction and Street Pavement Maintenance" will be presented by George C. Warren, Boston, Mass. In the evening a banquet will be held at the Jefferson Hotel, the headquarters of the convention. At the morning session, on September 28, reports will be received from committees, including one on "Uniform Specifications, Contracts, Cost Keeping and Cost Analysis." Much will be done to entertain the members socially and in sight seeing.

Johnson's Combination Rule

A rule combining the functions of a number of useful devices which has been recently placed on the market by the E. P. Johnson Rule Mfg. Company, 553 Monroe street, Chicago, Ill., is illustrated herewith. The device is a combination of a 6-in. rule, a protractor, try square, bevel and caliper.

It consists of two parts pivoted at one end to form a protractor, while a portion of the stationary part contains a sliding piece, which can be used for calipering outside diameters. The movable part can be adjusted to any angle or bevel desired, and the center joint is so made that the rule will remain firm wherever it may be set. A vernier reading to half degrees is provided for obtaining fine measurements of angles. When the movable arm is swung around and its edges coincide with those of the stationary part a 6-in. rule, graduated on one edge in sixteenths and on the other in



A Combination Rule Made by the E. P. Johnson Rule Mfg. Company, Chicago, Ill.

thirty-seconds is obtained. When the caliper is extended to its full length round stock not exceeding 2½ in. in diameter can be measured. The tool is made of German silver and is accurately graduated.

A Foundry Strike at Baltimore.—A strike has been on in the past three weeks at four Baltimore, Md., foundries, which are connected with the National Founders' Association. Demands for advances in wages were presented in the latter part of August by molders and coremakers in the foundries of the Baltimore Malleable Iron & Steel Casting Company, Bartlett, Hayward & Co., Stuart R. Carr & Co., and the Montford Machine Casting Company. About 120 men are involved. The basis of wages in these foundries heretofore has been $2.65 a day for coremakers and $2.90 a day for molders. The demand was for an advance to a flat rate of $3.25 a day, which would mean an increase of 60 cents a day for coremakers and 35 cents a day for molders. The proprietors offered as a compromise $3 a day for coremakers and $3.10 a day for molders, with an advance for all workers, including those heretofore receiving more than the minimum, but the offer was refused. New men are being brought in by three of the foundries involved in the strike, but for the present Bartlett, Hayward & Co. are letting out the manufacture of their castings.

New Publications

High-Speed Steel. By O. M. Becker. Size, 6 x 9 in.; pages, 360; illustrations, 273. Cloth bound. Price, $4 net. Published by the McGraw-Hill Book Company, 239 West Thirty-ninth street, New York City.

The book deals with the development, nature, treatment and use of high-speed steels, together with some suggestions as to the problems involved in their use, and is in a measure an amplification of a series of articles by the author which appeared in the *Engineering Magazine* about five years ago. Such of the original matter as has proved fundamental has been retained and brought into accord with present knowledge and practice, and much has been added touching the historical and theoretical aspects of high-speed and other tool steels. The object has been to include all that might be of interest in connection with the subject and to present an accurate résumé of the present state of knowledge concerning new steels. In the chapters dealing with the practical handling of new steels, the author has endeavored not only to cover all the points likely to come up and to indicate clearly just what is believed to be the best practice at the present time, but to describe all practical methods shown to yield satisfactory results where there is a diversity of opinion.

The volume is divided into six sections, five of which deal with some phase of the problem and the other contains a number of appendices. The first is historical and covers the development and nature of high-speed steels from the earliest days up to the present time. The second division is devoted to the making of the steels and the tools, and the various processes of making the steel and forging, hardening, tempering, annealing and grinding the tools are all described. The tool at work and the requirements of the design of both tools and machines are discussed in the next two sections, and the fifth is given up to the problems which arise from the use of these steels. The appendices include analyses of high-speed and special steels of various makes, an extract from the report on the "Art of Cutting Metals" by Fred W. Taylor made to the American Society of Mechanical Engineers in 1906, a reference table for determining cutting speeds, a diagram for determining the time of turning operations, a summary of the amount of metal removed and the cost, and a series of tables of practical cutting speeds for standard tools ranging in size from 1¼ in. down to ½ in.

Compressed Air.—By Elmo G. Harris. Size, 6 x 9¼ in.; pages, 123; 14 illustrations and 5 plates. Cloth bound. Price, $1.50, net. Published by the McGraw-Hill Book Company, 239 West Thirty-ninth street, New York City.

This book is designed to present a mathematical treatment of the problems in the production and application of compressed air and is intended especially for college bred men who have had a thorough training in mathematics and the mathematical sciences, which the author considers is prerequisite to a successful study of compressed air. Consequently no attempt has been made to adapt this volume to the use of the self-made mechanic, except in the insertion of more complete tables than usually accompany a work of this character. Special effort has been made to give examples of a practical nature illustrating some important points in the use of air or bring out some principles or facts not usually appreciated.

The book is divided into seven chapters, of which the first deals with formulas for work and the work done by the air, the second with the measurement of air and the third with friction occurring in air pipes. Chapter IV is given over to discussion of the hydraulic and centrifugal air compressors, while chapter V deals with special applications of compressed air, and chapter VI is devoted to a general discussion of the theory and operation of the air lift pumps. The concluding chapter contains a number of exercises and examples and is followed by a number of plates and tables. These give general information relating to the various properties of air under different conditions of temperature and pressure. A table of the capacity of air drills and one giving data on friction occurring in air pipes complete the book.

The McCaslin Conveyor Catalogue

An unusually handsome specimen of catalogue work is presented in catalogue 16 of the Mead-Morrison Mfg. Company, Cambridge, Mass., manufacturer of coal handling machinery, hoisting engines, cableways, &c., and contractor for coal handling and reclaiming plants. This particular catalogue covers the McCaslin overlapping gravity bucket conveyor, for conveying coal, ashes, cement, clinker and similar materials. It comprises 156 pages, 8½ x 16 in. Of these pages, no less than 144 present either one or two photographic reproductions showing plants in which the McCaslin conveyor has been installed. These plants embrace paper making, ore nodulizing, cement, wire rope, fiber, rock drill, meat packing, coke, electric and ice works and a very large number of power plants scattered all over this country, with a few in England. The engravings are highly artistic and are splendidly brought out on the excellent quality of paper used.

The plants referred to in the book represent over 28 miles of McCaslin conveyor, which in turn represents 112 miles of conveyor chain. If all these conveyors were in operation at one time they would have a capacity in coal of 12,000 tons per hour. At 50 tons per car this would be equivalent to a capacity of 240 modern steel coal cars, or six solid freight trains of 40 cars to the train.

The catalogue was written, arranged by and designed and printed under the direction of Ray D. Lillibridge, Inc., 192 Broadway, New York. The compiler states that the book was produced, including the collection of 90 per cent. of the photographs, within the present calendar year. As advance copies were received from the press June 29, it can conservatively be claimed that the book was produced in its entirety in six months. Those familiar with catalogue compilation will undoubtedly appreciate this as a real achievement.

Rail Orders from British Colonies.—British rail manufacturers have found recently that competition is keen from the United States and Canada for rail business coming up in British colonies. The United States Steel Corporation recently secured the Victorian Government order for 19,000 tons of 80-lb. rails besides other Australian business, while the Dominion Iron & Steel Company, Sydney, Nova Scotia, has made low bids on South African and South Australian business. The London *Ironmonger* reports a cable from Sidney, New South Wales, saying that the Government has accepted the bid of the Lithgow Iron Works in that country to furnish 70,000 tons of steel rails at the rate of 20,000 tons a year. This arrangement "has come as an unpleasant surprise to the British rail makers who find themselves thus face to face with increasing colonial competition, and this, too, just when they had been expecting to book important colonial orders."

The Standard Crucible Steel Casting Company, Milwaukee, Wis., has filed articles of incorporation, with $10,000 capital stock. The incorporators are Fred Weis, Henry M. Koosch and Mollie M. Koosch.

Trade Publications

Tool Holders.—Hill-Standard Mfg. Company, Anderson, Ind. Booklet. Size, 3½ x 6 in.; 32 pages. Treats of tool holders for turning, planing, boring and cutting-off metals. The holders are said to embody all the essential points of the old hand-forged tools and in addition have some good features of their own. With these holders no forging is necessary, as commercial shapes of tool steels can be used directly and are then in the best possible condition, consequently savings are effected in time, labor and money. In the design of the holders the proper rake is always given, the tool can be brought close to the work and largely increased speeds and feeds can be obtained. The holders illustrated in the booklet include all of the standard forms of tools.

Induction Motors.—Burke Electric Company, Erie, Pa. Bulletin No. 7. Relates to a line of motors whose distinguishing features are claimed to be reliability, rugged construction, ample use of material and conservative performance and rating. These motors embody the substantial features of the builder's direct current machines, and in most cases are interchangeable as regards shape and size of bases, shaft extension, hight, &c. Details of the construction of these motors are described and the text is supplemented by a number of illustrations.

Turret Lathes and Boring Mills.—The Bullard Machine Tool Company, Broad street and Railroad avenue, Bridgeport, Conn. Catalogue and circulars. The former calls attention to the vertical turret lathe illustrated in *The Iron Age*, October 3, 1907. In the design of this tool the good features of both the horizontal turret lathe and the vertical boring and turning mill are combined to the best advantage to produce a developed machine of distinctive type which has many structural and operative features which insure a maximum output and a minimum cost, due to the elimination of wasted time. Two sizes of machine, 24 and 36 in., are illustrated and described, and the working parts are illustrated separately with large detail half-tone engravings. Details of setting the tools to perform various operations are illustrated with line drawings and a set of complete instructions is included. The circulars cover a line of boring and turning mills which are made in sizes ranging from 30 to 86 in.

Cold Rolled Strip Steel.—Elliott-Blair Steel Company, New Castle, Pa. Booklet. Describes the various kinds of steel made by this company, which include dead-soft bright, cold-rolled, open-hearth and crucible strip steel, plain stamping and punching steel, dead-soft or stiff untempered spring steel, fine machinery steel, key and lock steel and typewriter and sewing machine steel. A table of the weights per lineal foot of bars 1 in. wide and of thicknesses corresponding to the various gauge numbers is appended.

Gasoline Engines.—Trebert Gas Engine Company, Butler, Ind. Catalogue. Describes and illustrates a line of marine gasoline engines which includes a two-cylinder 10-hp., four-cylinder 35-hp. and 25-hp. motors, a six-cylinder 40-hp. model for marine and automobile purposes, a two-cylinder 25-hp. and a four-cylinder 55-hp. engine; also a canoe motor and propeller wheels, clutches, couplings, crank shafts, &c.

Lighting Conduit.—Safety-Armorite Conduit Company, Bailey-Farrell Building, Pittsburgh, Pa. Booklet. Size, 7½ x 9¼ in.; 81 pages. Contains a number of illustrations of buildings in which this company's Loricated and Galvaduct conduits have been installed. The processes by which these conduits are manufactured are described, and there are a number of diagrams showing the comparative sizes of double braided wire and the different conduits, the exact outside and approximate inside diameters of the different sizes of conduits and a list of the standard symbols for wiring plans. In addition to the buildings illustrated there is a list of a number of others in which these conduits have been installed.

Injectors.—Schutte & Koerting Company, Philadelphia, Pa. Catalogue 1, section A. Devoted to the Koerting universal double tube injector which is a combination of two jets. The lower is proportioned for extreme temperature and for quick and strong action, and the discharge is into the upper jet where the water receives the additional strong impulse to carry it into the boiler. The various styles of injector are illustrated and tables of dimensions are included.

Tubing and Insulating and Textile Machinery.—John Royle & Sons, Straight and Essex streets, Paterson, N. J. Two catalogues. Illustrations and descriptive matter in the first explain the operation of a line of machines for making rubber tubing of all sorts and sizes, ranging from tiny artificial flower stems up to hose of large sizes. Although this is the work for which these machines are designed, at the same time they are also applied to the production to solid cords, rods, variously shaped druggists' and stationers' sundries, stock for molded articles, the straining of reclaimed rubber and working other plastic materials such as compounds of gutta percha and celluloid. The insulating machines are described in the same catalogue as the tubing machines, since they are really a special type of the latter. There are a number of illustrations showing the different sizes and styles of machines, as well as the different classes of work done by them. The other catalogue deals with the line of textile machines made by this company and treats mainly of the Jacquard card cutting, lacing and repeating machines supplied to that trade.

Rock Drills.—Ingersoll-Rand Company, 11 Broadway, New York City. Bulletin No. 4102. Pertains to the Sargent line of rock drills which are constructed to combine successfully the independent air-thrown valve of the spool type with an improved modification of the tappet action. The valve chests of the different styles of drills are shown as well as the chucks and shells. There are also a number of illustrations showing drills in use. A table giving the dimensions and specifications for the different sizes of drills and a list of the duplicate parts are appended.

Steam Engines.—Trenton Engine Company, Trenton, N. J. Catalogue R. This is the company's 1910 catalogue describing and illustrating the Reeves steam engines for belted and direct connection. The compound engines range from 15 to 600 hp. and the single engines from 5 to 300 hp., and altogether there are 15 distinct frame sizes of patterns and drawings permitting over 100 combinations of cylinder sizes and strokes to suit the varying conditions of horsepower and steam pressure found in modern engineering practice. The illustrations not only show the engines complete but also serve to supplement the detailed description of the differnt parts. Tables of dimensions and test curves of the different engines complete the catalogue.

Motor Aneroid.—Short & Mason, Ltd., London, England; Taylor Instrument Companies, Rochester, N. Y., sole United States agents. Folder. Devoted to an elevation indicator and barometer for automobiles. This instrument is designed for use on the dash board of automobiles and is fitted with scales showing elevations and depressions of 2000 ft., the scales being in contrasting colors. Each division of the scale represents 20 ft., but by careful observations readings of 10 ft. can be taken. It can also be used in connection with an odometer for giving grades.

Gears and Gear Cutting Machine.—Fawcus Machine Company, 2820 Smallman street, Pittsburgh, Pa. Catalogue and circular. The former contains a number of illustrations showing the various kinds of gears which this company is prepared to cut. These include rawhide gears and pinions which in the larger sizes have cast iron centers and bronze flanges, brass-faced rawhide pinions and bevel-spur and worm gears, which are furnished in steel, cast iron and phosphor and gun bronzes according to the work they are intended to do. A table of pitch diameters for 1-in. circular pitch for all customary numbers of teeth from 10 to 130 and a table of the horsepower transmitted by cast iron cut pinions are included. The circular refers briefly to the double axle cutting-off and centering machine, an illustrated description of which appeared in *The Iron Age* December 7, 1905.

Electrical Machinery and Appliances.—General Electric Company, Schenectady, N. Y. Four bulletins. No. 4754, superseding No. 4562, describes in considerable detail the types MD, MI and MDS mill motors and contains dimension diagrams of these types. *The Iron Age*, October 7, 1909, contained an illustrated description of the MI motor. Nos. 4758 and 4764 illustrate and describe the Mazda lamps for sign and low-voltage use and contain diagrams of connections and data on the cost of operation. No. 4762, superseding No. 4527, is concerned with the Thomson polyphase watthour meter for measuring energy in two-phase, three-phase and monocyclic circuits, which may carry mixed loads of lamps, motors or other translating devices. The meter, it is claimed, will record accurately irrespective of unbalanced load conditions.

Gear Cutting.—The Adams Company, Dubuque, Iowa. Booklet No. 804, entitled "Gear Cutting Speeds." Relates to the advantages of cutting gear teeth by hobbing as compared with milling on one and three teeth or planing on three teeth, and contains a number of formulae for determining the proper rates of speed and feed for this class of work. These formulae, while relating especially to the Farwell gear hobber of this company, are nevertheless applicable to all hobbing machines, and in addition rules for standard spur gears are given.

Tool Steel.—Vanadium-Alloys Steel Company, Latrobe, Pa., McKenna Bros. Brass Company, Pittsburgh, Pa., general sales agent. Booklet. This lists the different kinds of Red Cut and Vasco steels, which are made for a number of different purposes in bars, disks and various special shapes. Each of the different steels is described briefly and lists are given of the different sizes in which the steel is made.

Tooth Chamfering Attachment.—The Long-Arm System Company, Cleveland, Ohio. Pamphlet. Illustrations and descriptive matter explain the operation of the "Long-Arm" automatic tooth chamfering attachment for use in the manufacture of sliding gear transmissions. The results obtained through its use are said to be superior to those secured by the use of a special milling cutter and file. A description of the construction and operation of the attachment is included, and this is followed by a partial list of users. *The Iron Age*, February 27, 1908, contained an illustrated description of the attachment.

CURRENT METAL PRICES.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from store—

Refined Iron:

1 to 1⅝ in. round and square; 1½ to 4 in. x ⅜ to 1 in.	₩ lb 1.90¢
1½ to 4 in. x ⅛ to 5-16	₩ lb 2.10¢
Rods—⅜ and 11-16 round and square	₩ lb 2.10¢

Angles: Cts ₩ lb

3 in. x ¼ in. and larger	2.10¢
3 in. x 5-16 in. and ⅜ in.	2.35¢
1½ to 2½ in. x ¼ in.	2.20¢
1½ to 2½ in. x 5-16 in. and thicker	2.10¢
1 to 1¼ in. x 5-16 in.	2.20¢
1 to 1¼ x ⅛ in.	2.30¢
⅝ x ⅛ in.	2.40¢
¾ x ⅛ in.	2.50¢
⅞ x ⅛ in.	3.55¢
⅛ x 3-32 in.	4.35¢

Tees:

1 in.	2.65¢
1¼ in.	2.45¢
1½ to 2½ x ¼ in.	2.15¢
1½ to 2½ x 5-16 in.	2.35¢
3 in. and larger	2.15¢
Beams	2.10¢
Channels, 3 in. and larger	2.10¢
Bands—1½ to 6 x 3-16 to No. 8	2.30¢
"Burden's Best" Iron, base price	3.15¢
Burden's "H. B. & S." Iron, base price	2.95¢
Norway Bars	3.60¢

Merchant Steel from Store—

	per lb.
Bessemer Machinery	1.90¢
Toe Calk, Tire and Sleigh Shoe	2.50@3.00¢
Best Cast Steel, base price in small lots	.7¢

Sheets from Store—

Black	One Pass, C.R. Soft Steel.	R. G. Cleaned.
No. 16	₩ lb 2.80¢	2.90¢
Nos. 18 to 21	₩ lb 2.85¢	3.00¢
Nos. 22 and 24	₩ lb 2.95¢	3.10¢
No. 26	₩ lb 3.00¢	3.20¢
No. 28	₩ lb 3.10¢	3.40¢

Russia, Planished, &c.

Genuine Russia, according to assortment, ₩ lb 12 @14½

Patent Planished, W. Dewees Wood, ₩ lb A, 10¢; B, 9¢ net.

Galvanized.

Nos. 14 to 16	₩ lb 2.95¢
Nos. 22 to 24	₩ lb 3.30¢
No. 26	₩ lb 3.50¢
No. 28	₩ lb 3.85¢

No. 20 and lighter 36 inches wide, 25¢ higher.

Genuine Iron Sheets—

Galvanized.

Nos. 22 and 24	₩ lb 5.75¢
No. 26	₩ lb 6.25¢
No. 28	₩ lb 7.25¢

Corrugated Roofing—

2½ in. corrugated.	Painted	Galvd
No. 24	₩ 100 sq. ft. $3.85	4.80
No. 26	₩ 100 sq. ft. 2.95	4.00
No. 28	₩ 100 sq. ft. 2.60	3.75

Tin Plates—

American Charcoal Plates (per box.)

"A.A.A." Charcoal:

IC, 14 x 20	$6.35
IX, 14 x 20	7.60

A. Charcoal:

IC, 14 x 20	$5.40
IX, 14 x 20	6.50

American Coke Plates—Bessemer—

IC, 14 x 20 .107 lb	$4.40
IX, 14 x 20	5.40

American Terne Plates—

IC, 20 x 28 with an 8 lb. coating	$8.50
IX, 20 x 28 with an 8 lb. coating	10.50

Seamless Brass Tubes—

List November 17, 1908. Base price 18¢

Brass Tubes, Iron Pipe Sizes—

List November 13, 1908. Base price 18¢

Copper Tubes—

List November 13, 1908. Base price 21¢

Brazed Brass Tubes—

List August 1, 1908. 19½¢ ₩ lb

High Brass Rods—

List August 1, 1908. 14¼¢ ₩ lb

Roll and Sheet Brass—

List August 1, 1908. 14¼¢ ₩ lb

Brass Wire—

List August 1, 1908. 14¼¢ ₩ lb

Copper Wire—

Base Price. Carload lots mill 14 ¢

Copper Sheets—

Sheet Copper Hot Rolled, 16 oz (quantity lots) ₩ lb 8 ¢

Sheet Copper Cold Rolled, 1¢ ₩ lb advance over Hot Rolled.

Sheet Copper Polished 20 in. wide and under, 1¢ ₩ square foot.

Sheet Copper Polished over 20 in. wide, 2¢ ₩ square foot.

Planished Copper, 1¢ ₩ square foot more than Polished.

METALS—

Tin—

Straits Pig ₩ lb 27 ¢

Copper—

Lake Ingot	₩ lb 14¼@
Electrolytic	₩ lb 14¼@
Casting	₩ lb 14¼@

Spelter—

Western ₩ lb 6¼@

Zinc.

No 9, base, casks ₩ lb 8 ¢ | Open ₩ lb

Lead.

American Pig	₩ lb 5 ¢
Bar	₩ lb 6½@

Solder.

½ & ½, guaranteed	₩ lb 22½@
No. 1	₩ lb 20½@
Refined	₩ lb 18 ¢

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Cookson	₩ lb
Hallett's	
Other Brands	

Bismuth—

Per. lb $2.00@2.25

Aluminum—

No. 1 Aluminum (guaranteed over 99% pure), in lots for remelting

Rods & Wire Base Price

Sheets Base Price

Old Metals.

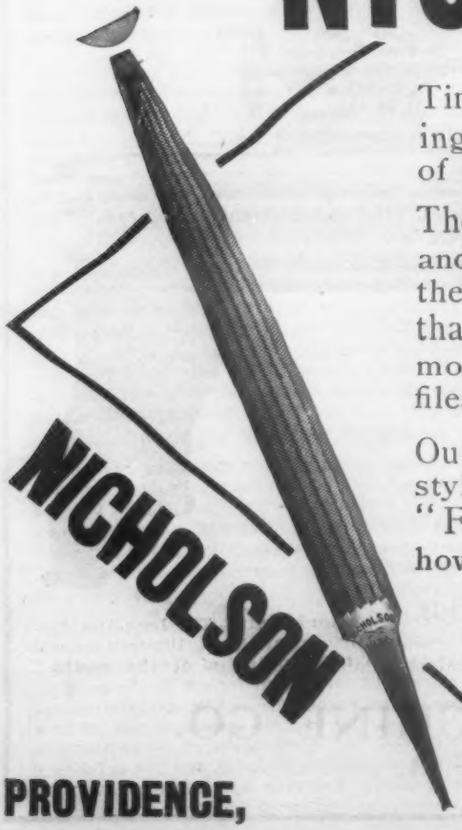
Dealers' Purchasing Prices Paid in New York

	Cents
Copper, Heavy cut and crucible	₩ lb 16.75@
Copper, Heavy and Wire	₩ lb 16.50@
Copper, Light and Bottoms	₩ lb 9.50@
Brass, Heavy	₩ lb 7.25@
Brass, Light	₩ lb 5.75@
Heavy Mechine Composition	₩ lb 9.50@
Clean Brass Turnings	₩ lb 7.00@
Composition Turnings	₩ lb 8.25@
Lead, Heavy	₩ lb @
Lead, Tea	₩ lb @
Zinc Scrap	₩ lb @

NICHOLSON U.S.A. TRADE MARK

NICHOLSON

NICHOLSON U.S.A. TRADE MARK



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